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See pp. 19, 23, 26, 28, 30, 111, 135, for catalogs and publications on municipal and civic subjects

List of coming conventions on page 109. For Index to Advertisements see page 178.

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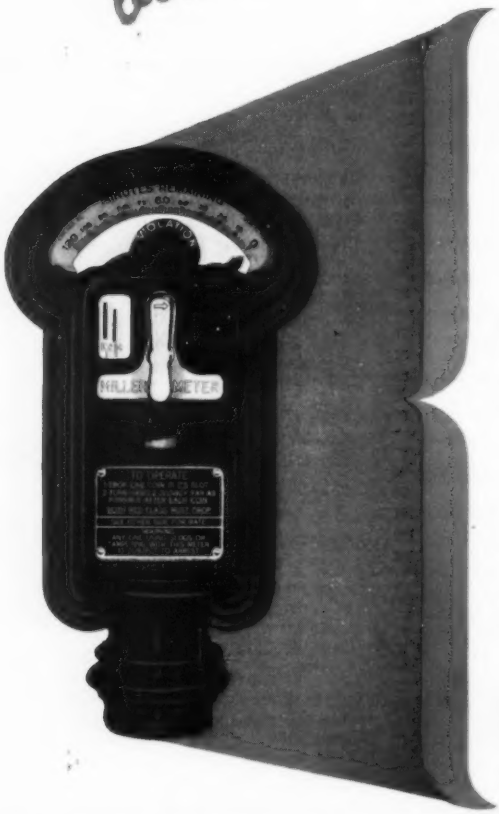

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OUR MUNICIPAL NOTEBOOK

Municipal Buying Can Help Prevent a Boom and a Bust

IN the vast volume of pent-up purchasing power of municipalities lies both a threat to the nation's stability and a hope for avoiding "a boom and a bust." Careful planning and wise timing must be used together to find the answer.

The case for a complementary and compensatory policy of public spending is effectively presented by Dean Simeon E. Leland, of the College of Liberal Arts of Northwestern University, in the March issue of *State Government*:

The objective of over-all policies in the economic sphere should be economic stability. We should attempt to use the public economy so as to compensate for the fluctuations that take place inevitably in the private sphere. Increased governmental borrowing and spending should be timed to occur, as far as possible, during periods of business declines, and with increased taxation and reduced public expenditures transferred, so far as it can be arranged, to periods of prosperity and times of inflation. Such a policy is complementary. However, our policies prior to 1930 have been perversely synchronized. Both the public and private economy increased its spending and effected retrenchments together. As a consequence everyone suffered at the same time. Nor do we want our national economic policies to be competitive. If industry and government compete with each other for labor, materials, and capital, the certain effect of that competition is to raise costs all around. Both industry and government have a unity of interest in a complementary policy which provides prosperous business conditions, a prosperous citizenry and a prosperous government over the long run.

While strongly urging this policy, Dr. Leland is none too optimistic about the wisdom of public officials or the support of the electorate in making it effective. The cumulative effect of the whole depends rather on the extent to which each unit of government plays its part.

In the important potential purchasing area controlled by readers of THE AMERICAN CITY, we urge avoidance of over-buying in the present seller's market. This advice is offered with full recognition of the fact that many municipal purchases are too urgently needed to be wisely postponed. But many others can be held as a reserve to be released when private demand slackens, when lower prices can be obtained, and when liberal public spending may become the determining factor in preventing any dangerous tailspin in the national economy.

Postponement of buying, of course, should not become an excuse for delay in planning and in long-term budgeting of needed public improvements. Our cities were not ready when the depression of the 1930's threatened—and arrived. Let us play our part in preventing a depression of the 1940's or 1950's!

Federal Government's Part Is Considered

HERE are three significant paragraphs from the First Annual Report to the President, of the three-man Council of Economic Advisers (Edwin G. Nourse, Leon H. Keyserling, and John D. Clark), set up by the Congress under the Employment Act of 1946:

Hence experience and experimentation teach us that there is an important area of Government action in stimulating, facilitating, and complementing the enterprise of private business even if individually well managed. This functional differentiation and cooperation between private enterprise and public enterprise is in our view something quite different from and much better suited to our situation and temperament than the nationalization of industries to which our English cousins have now resorted. Nor does it involve that regulation of actual business operation which would constitute bureaucratic "regimentation" . . .

Besides promoting a more adequate use of our national resources by private enterprise, several methods of stabilizing the economy lie within the hands of the Government alone. It must review, as part of a total program, the legal aids and financial subsidies that it has always given to particular branches or phases of transportation, manufacture, trade, and finance, and, more recently, to agriculture and labor. It must gauge carefully the amount and character of public informational, regulatory, and service work the Government needs to perform as a means of preventing fraud, discrimination, or waste, and securing maximum advance in efficiency of operation, particularly among the very small business units, at a minimum of cost. It must consider carefully how much of the national income it shall allow to be channeled into military outlay in view of the nature of dangers and the possibility of physical protection in the light of latest developments. It must decide whether changes in our traditional use of Government agencies in the fields of education, health, and conservation would most surely advance our total production and purchasing power. The timing, volume, and distribution of its own expenditures must be considered in relation to those of private business and state and local governments. The Government must weigh the claim made by some citizens and businessmen that taxation (as such or after the rate has reached some point) is legalized robbery. Or is it being so handled as to be the means by which Government can redress faults in the distribution of total product and the adjustment of these shares to individual or group contributions, faults which tend to keep production below its possible maximum?

As a broad principle, the report urges that the agents of government diligently study and vigorously use a democratic and statesmanlike control of the public purse to put a brake at certain strategic points where boom forces develop dangerous trends, and to stimulate employment and production and support purchasing power when and where it becomes unduly depressed. "Here," says the report, "Government must constantly face the same dilemma that every doctor—and every parent—faces. Calm judgment must be exercised not to rush in fussily, ministering to small and temporary disturbances that would right themselves sooner and better if left to themselves. On the other hand, carelessness or ignorance must not keep Government from detecting serious symptoms promptly and initiating corrective measures with skill and decisiveness."

A Technique for Labor Negotiation

MAYOR Hubert H. Humphrey of Minneapolis, Minn., offers sound advice in his article dealing with municipal handling of labor relations on page 92 of this issue. In particular, he emphasizes the importance of a proper negotiation technique and maintaining the respect of both parties. This, says the mayor, means being frank and above-board, being a patient listener, and, above all, bringing to the attention of the opposing interests their responsibility to their organizations and to the community.

Perhaps one reason for the success of Mayor Humphrey's policies is the fact that he demands a frank discussion with the persons who have respon-

More Telephone Service for more people

From the 1946 Annual Report of the American Telephone and Telegraph Company

1 In NO YEAR since the telephone was invented was there such a remarkable increase in the amount of telephone service furnished to the American people as in 1946. The net gain in the number of Bell telephones was 3,264,000, or more than twice the gain for any previous year. Additional telephones were installed at a rate averaging more than 25 a minute every working day.

2 Achievement of this kind reflects the skill, energy and determination of the 617,000 people working together on the Bell System team. What has been done has not been done easily. Many thousands of new employees have been trained in telephone work. It has been necessary to overcome serious difficulties caused by the persistent scarcity of certain essential raw materials needed in large quantities.

3 Most of those who were waiting for Bell telephone service at the start of 1946 had been cared for by the year's end. In addition, the System was able to take care of more than 70 per cent of all new applications received. Yet the total number of new requests for service was so great (there were more than five million) that at the beginning of 1947 there were still about two million people waiting for service.

4 We are working hard to remedy this situation and also to reach the point where all calls can be handled with pre-war speed or better — in short, to give every customer the kind of service he wants when and as he wants it. With experience at hand in abundance, and with new tools and techniques, the Bell System looks forward to steadily increasing achievement in service to the American people.

BELL TELEPHONE SYSTEM

sibility and authority. As mayor, he insists that the top men of both labor and management participate in any labor negotiation that is held in his office. He refuses to deal with subordinates, or those who ultimately must go back to someone else for a decision.

These facts seem to show that mayors or other public officials dealing with labor disputes within their communities should demand the best that the union or the company has to offer in terms of personalities or negotiating committees, if decisions are to be reached with minimum friction and delay.

Municipal officials who desire information about the development of labor policy may be interested in the following recent publications all of which discuss certain aspects of the field:

A National Labor Policy—By Harold W. Metz and Meyer Jacobstein. Published by the Brookings Institution, Washington, D. C. 1947. 164 pp.

Labor Relations and The Public—Herman Feldman, Editor. The Annals of The American Academy of Political and Social Science, 3157 Walnut Street, Philadelphia 4, Penn. November, 1946. 316 pp. $2.00.

Basic Criteria Used in Wage Negotiations—By Sumner H. Slichter. Published by the Chicago Association of Commerce and Industry, 1 No. LaSalle St., Chicago 2, Ill. 1947. 56 pp. 50 cents.

Collective Bargaining: How to Make it More Effective—A Statement on National Policy by the Research and Policy Committee of the Committee for Economic Development, 285 Madison Avenue, New York 17, N. Y., 1947. 24 pp. Single copies available without charge.

Strikes and Democratic Government—A Report by the Labor Committee of The Twentieth Century Fund, 330 W. 42nd St., New York 18, N. Y. 1947. 31 pp.

Subdivision Control Gains Increased Momentum

REALIZATION that improperly planned subdivisions may create tomorrow's slums is increasing municipal interest in procedures to be followed in subdivision guidance and regulation.

A number of publications have been issued recently showing the necessity for strong municipal subdivision control. The National Housing Agency's publication, *A Check List for the Review of Local Subdivision Controls*, should be read by every municipal planning commissioner. The Urban Land Institute *Newsletter* for January 1947 pointed out in an article how a modern subdivision-design actually pays substantial dividends both in construction savings and higher market value.

A course of instruction for municipal officials in the nature of subdivision control and design was conducted early this month at the University of Pennsylvania by the Institute of Local and State Government. As the third in its series of short one-day classes on current municipal problems for commissioners, councilmen, secretaries, planners, and engineers, the Institute arranged a program devoted solely to land subdivision.

State planning and development agencies are also furnishing considerable assistance to localities on this subject. However, *Land-Subdivision Guidance and Regulation in New Jersey*, a publication of the Division of Planning and Engineering, New Jersey State Department of Economic Development, points out the necessity for planning boards to develop master plans before subdivision control can be carried out intelligently.

Until the planning board has developed its master plan, [the report emphasizes] the board and the land developers are helpless in anticipating future community needs as they may be seriously affected one way or the other by the land subdivisions coming to the board for its approval.

This advice seems especially important at this time when so many municipalities are experiencing rapid changes in population and industry location.

Lot-size Requirements in Fifty-three Massachusetts Municipalities

SINCE 1940, twenty-four cities and towns in the Boston metropolitan area have revised their zoning ordinances, placing minimum lot size requirements in the regulations. All new construction on land not subdivided prior to these revisions must be guided by their stipulations.

These revised ordinances and the zoning provisions already in effect in other communities of the region were examined by the Greater Boston Development Committee, Inc., in preparing its 1947 study, *Guiding the Building Boom*.* The study discloses a trend which adapts lot-size requirements to purposes of sound community development by taking into account the type of house that is currently in demand. This is the single-family, free-standing house with attached garage, which requires a wider lot than was formerly customary. Also, districts requiring larger minimum-size lots frequently have been established to insure less intensive development and a better neighborhood.

This [says the report] represents a permanent gain for the home owner. The majority of the outlying towns in the western and northern parts of the region have adopted the policy of zoning their substantial acreages of open land for lots of roughly half an acre to one acre in size, so as to insure this open character. Where land is not physically suited to smaller lot development, such as steeply sloping hillsides, wooded areas, rocky land and low-lying marshes, there is even more reason for large lots.

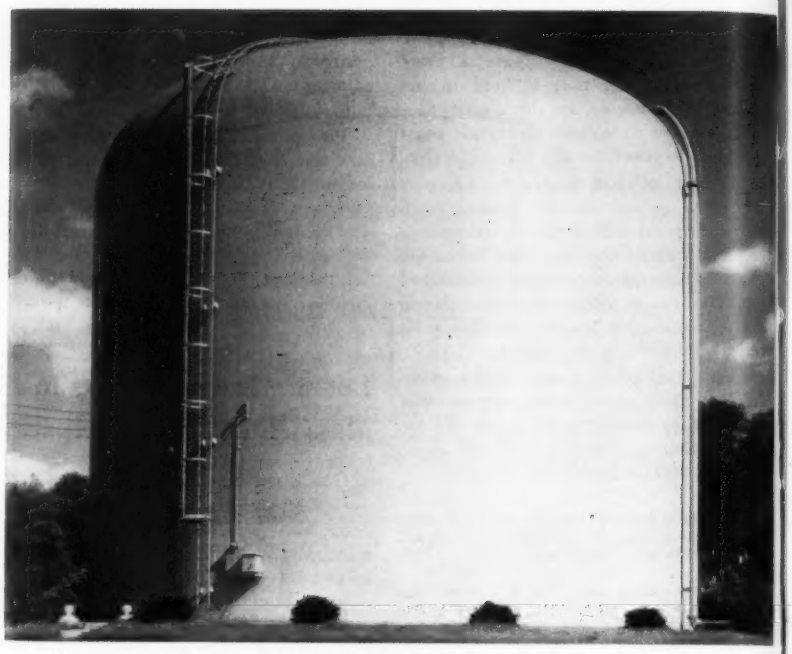
The following tabulation, prepared by THE AMERICAN CITY from the abovementioned report, lists all of the fifty-three cities and towns in the area studied by the Boston Committee, and indicates the requirements for minimum-sized lots for single-family, detached dwellings in certain residential districts of these municipalities. Where more than one lot-size is listed for any city or town, this indicates, of course, that several lot-sizes are limited to certain districts only of that municipality.

Arlington—6,000 sq. ft.
Bedford—7,500 sq. ft.; 20,000 sq. ft.; 40,000 sq. ft.
Belmont—No lot-size requirements in general residential districts.
Boston—6,000 sq. ft. for single family dwellings.
Braintree—7,500 sq. ft.; 15,000 sq. ft.
Brookline—7,500 sq. ft.; 15,000 sq. ft.; 25,000 sq. ft.; 40,000 sq. ft.
Burlington—10,000 sq. ft.; 20,000 sq. ft.
Cambridge—6,000 sq. ft.; 8,000 sq. ft.
Canton—6,500 sq. ft.; 10,000 sq. ft.; 15,000 sq. ft.
Chelsea—No zoning restrictions on lot size.
Cohasset—Not zoned.
Concord—20,000 sq. ft.; 40,000 sq. ft.
Dedham—7,500 sq. ft.; 40,000 sq. ft.
Dover—½ acre; 1 acre.
Everett—No zoning restrictions on lot size.
Hingham—12,500 sq. ft.
Hull—4,000 sq. ft.
Lexington—12,500 sq. ft.
Lincoln—20,000 sq. ft. (on permit of Board of Appeals); 40,000 sq. ft.
Lynn—4,000 sq. ft.
Lynnfield—10,000 sq. ft.
Malden—No zoning restrictions on lot size.
Medford—5,000 sq. ft.
Melrose—7,500 sq. ft.
Milton—7,500 sq. ft.; 20,000 sq. ft.; 40,000 sq. ft. (with special provisions for 16,000 sq. ft. and 32,000 sq. ft.)
Nahant—5.000 sq. ft.; 10.000 sq. ft.
Natick—6,000 sq. ft.; 10,000 sq. ft.
Needham—No lot-size requirements in general residential district; 10,000 sq. ft.; 1 acre.
Newton—7,000 sq. ft.; 10,000 sq. ft.; 15,000 sq. ft.
Norwood—6,000 sq. ft.
Quincy—4.500 sq. ft.
Randolph—7,500 sq. ft.
Reading—10,000 sq. ft.; 15,000 sq. ft.; 40,000 sq. ft.
Revere—4,500 sq. ft.
Saugus—7,500 sq. ft.
Sharon—8,000 sq. ft.; 10.000 sq. ft.
Somerville—No zoning restrictions on lot size.
Stoneham—7.000 sq. ft.
Stoughton—Not zoned.
Swampscott—7,500 sq. ft.
Wakefield—8,000 sq. ft.; 6,000 sq. ft.
Walpole—5.000 sq. ft.
Waltham—8.000 sq. ft
Watertown—8,000 sq. ft.
Wayland—10,000 sq. ft.; 15,000 sq. ft.; 20,000 sq. ft.
Wellesley—10,000 sq. ft.; 15,000 sq. ft.; 20,000 sq. ft.
Weston—20,000 sq. ft.; 30,000 sq. ft.; 40,000 sq. ft.
Westwood—7,500 sq. ft.; 12,000 sq. ft.; 15,000 sq. ft.; 40.000 sq. ft.
Weymouth—5,000 sq. tf.
Wilmington—5.000 sq. ft.; 10.000 sq. ft.
Winchester—6.500 sq. ft.; 10,000 sq. ft.; 15,000 sq. ft.
Winthrop—No zoning restrictions on lot size.
Woburn—No zoning restrictions on lot size.

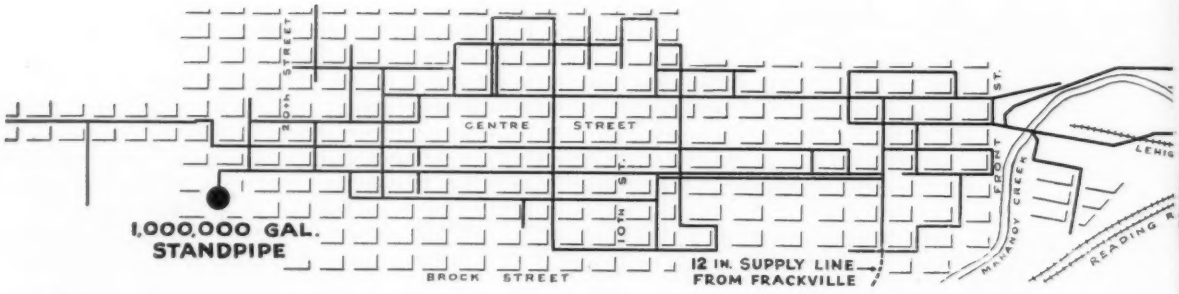
* See page 113 of this issue.

1,000,000-GALLON HORTON WELDED STANDPIPE

. . improves service in low pressure area of Ashland's water distribution system



Above: The 1,000,000-gal. Horton welded standpipe at Ashland, Pa. It is 60 ft. in diam. by 48 ft. high, and has an ellipsoidal roof. Below: Map of Ashland, Pa. water distribution system showing location of new standpipe and place where supply main enters system.



The Borough of Ashland, Pa. installed the 1,000,000-gal. standpipe shown above to maintain adequate service during peak load periods in the low pressure area of its water distribution system.

Five springs at Frackville, 5 miles from Ashland, supply the water for the system. It is collected in a 110,000,000-gal. reservoir and flows to the distribution system *by gravity* through a 12-inch main. The transmission line from the reservoir enters Ashland at the southeast corner of the Borough. The new reservoir, which is located at the western end of the distribution system, is filled from the mains during off-peak periods. During peak periods, the reserve thus created flows back into the mains to provide adequate water pressure in the low pressure area.

The system operates entirely by *gravity*. However, a booster pump is available to augment the pressure produced by gravity during extreme drought conditions or low head in the impounding reservoir. The Ashland distribution system serves 2242 customers who use an average of 700,000 gpd.

Ground-level reservoirs are just one type of storage tanks we build for municipal water supply systems. Other structures include Horton all-welded elevated tanks and Horton Waterspheres. For quotations on these products write our nearest office outlining your requirements.

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Tulsa 3.....1625 Hunt Bldg.
New York 6.....3308—165 Broadway Bldg.
Cleveland 15.....2236 Guildhall Bldg.
Los Angeles 14.....1403 Wm. Fox Bldg.
Chicago 4.....2127 McCormick Bldg.
San Francisco 11.....1233-Battery Street Bldg.
Philadelphia 3.....1616-1700 Walnut Street Bldg.
Atlanta 3.....2114 Healey Bldg.
Havana.....402 Abreu Bldg.
Detroit 26.....1501 Lafayette Bldg.

Plants in BIRMINGHAM, CHICAGO and GREENVILLE, PENNSYLVANIA

Some Pro's and Con's About Air Mixing

A discussion of the advantages and disadvantages of using air to mix coagulants with water was held recently in Raleigh, N. C., at the North Carolina section meeting of the American Water Works Association. Superintendent-Chemist W. W. Adkins, Asheboro, N. C., listed them as follows:

Advantages

1. The initial cost of the mixing equipment is low, and its design requires only simple structures.

2. Since there is almost no loss of head through the mixing chamber, its operating cost is not high. The only cost involved is for power to drive the compressors. The Asheboro plant requires approximately two kilowatts per million gallons of water treated.

3. When, as is the case with the Asheboro plant, the air is applied to the influent end of the mixing chamber, a tapering agitation results as the coagulating water moves toward the effluent end. This tapering effect improves floc conditioning.

4. One can obtain greater flexibility of operation with the air mix than with most other simple types. During the summer, when the raw water is relatively warm, the Asheboro plant uses only the thirty-two plates located in the influent half of the mixing chamber. A preliminary flash mix is provided, which is followed by a period of gentle agitation that increases the size of the floc. For winter operation, the valve is opened to give maximum but tapered agitation throughout the length of the basin. This method produces a satisfactory floc except during periods of extremely low temperatures.

Disadvantages

1. Air mixing does not produce a satisfactory floc at Asheboro during periods of extremely low temperature, when using alum for a coagulant. This may not be solely the fault of the mixing method. Nevertheless, there appears to be an incomplete reaction, resulting in pin-point floc that will pass through the filters after about half the normal filter run and loss of head has occurred.

Laboratory tests demonstrate conclusively that additional mixing will produce an excellent floc at optimum dosages. Operating both compressors simultaneously, however, made no apparent improvement. A longer period of gentle agitation, produced by the action of slow-speed, horizontal paddles, would probably solve the problem.

2. Air-bound filters are a result of the release of dissolved air in the filter underdrains. When plants are designed with special vents to release the trapped air, as is the case with the Asheboro plant, this difficulty is avoided.

3. Some air is entrained in the floc particles, producing an inferior floc with poor settling characteristics and resulting in poor filter performance.

4. Where the design calls for the application of chlorine before mixing, some chlorine is lost by the aeration process. When chloramines are used, no appreciable loss is experienced.

The Asheboro plant has a rectangular mixing chamber 36 feet long, providing a 30-minute retention period at 1.5 mgd flow. The chamber has a total of sixty-two diffuser plates arranged in a single longitudinal row of vertical, double-plate containers. The individual plates are a foot square. They will pass 2 cubic feet of air per plant when saturated with water, with a loss of head of 10 to 12 inches of water. Two rotary-type compressors, each rated at 3 hp and capable of delivering 40 cfm of free air against a working pressure of 5 psi, supply the air for the mixing chamber.

Iron-Free Water for Durand, Mich.

HOUSEWIVES in Durand, Mich., no longer have to rely on water from cisterns in order to wash clothes, nor do bathers have to wonder whether they were cleaner before they took a bath than afterwards. With a new iron removal plant, this community of 3,500 now can deliver a water with an iron content of less than 0.2 ppm from a raw water of more than 3.2 ppm.

To do this, M. W. Reynolds, superintendent, uses a new General Filter Co. iron removal plant which first aerates the water and then removes the precipitated iron through a set of pressure filters. These deliver iron-free filtered water with the help of a pair of Allis-Chalmers booster pumps, each capable of pumping 400 gpm. A Sparling main line meter measures the flow to the distribution system.

The community has three 55-foot-deep wells that replace a battery of eight wells of 6-inch diameter. The new wells are served by a set of Peerless pumps that deliver the water to the filters.

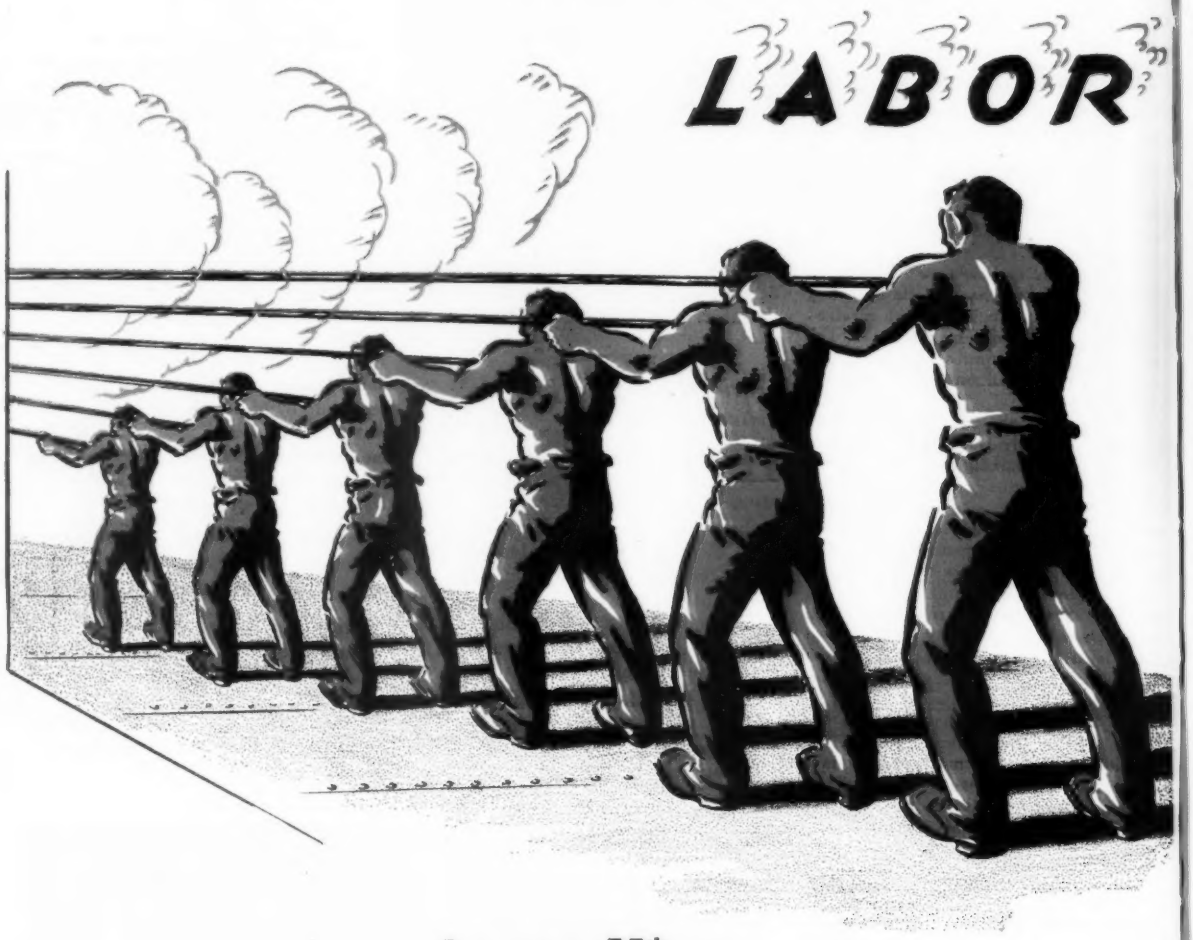
The new iron removal plant is housed in a trim, brick building, 28 feet wide by 65 feet long. The building contains the wells, general workshop, meter repair facilities, and Superintendent Reynolds' office, as well as the iron removal equipment.

Glenn B. Tinsley Re-elected

Glenn B. Tinsley has been re-elected for a six-year term on the Clarksburg, W. Va., Water Board. This $3,000,000 institution, which has been operating for thirty-five years, is almost free of debt, and is Clarksburg's only public-owned utility.

M. W. Reynolds, water department superintendent, in new iron removal plant.

Cut out this back-breaking



install* a

NICHOLS MONOHEARTH

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*OR MODERNIZE YOUR EXISTING INCINERATOR BY INSTALLING A NICHOLS-MONOHEARTH CONE AND STOKING ARMS.

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University Tower Bldg., Montreal, Canada

Are Your Trucks Like These?

Bad as many superintendents feel that the equipment situation may be in the United States, none that we know of has been forced to use garbage carts as is the accepted practice in Shanghai, China. These buggies haul the garbage to barges, where it is carried across the Whangpoo River and used as fill material. Norman Gordon, Brooklyn, N. Y., contributed the picture.

What Happens Inside a Sanitary Fill?

SAN FRANCISCO decided to find out and turned up with this answer: relatively nothing, at least for the first twelve years.

Last year the Bureau of Engineering in San Francisco's Department of Public Works dug two test pits, each about nine feet deep, into a portion of the sanitary fill which had been in place since 1934. Material contained in the garbage layers showed very little evidence of decomposition. Specimens of fruits and vegetables appeared to be virtually as fresh as the day they were originally buried. Carrots, corn, lemon, and grapefruit peels still were in a perfect state of preservation. Tin cans were bright and free of rust. Other metals evidence of deterioration from electrolytic action.

Freshly uncovered garbage and refuse yielded a strong odor of decomposition, which presumably was caused by the sudden release of accumulated trapped gases. Temperatures near the bottom of the pit were higher than those near the surface, the difference being about 2° F in one hole and 10°F in the other.

These findings were reported by H. C. Vensano, Director of Public Works, in his recent annual report to the city and county of San Francisco.

"King-Size" Garbage Can Serves Housing Unit

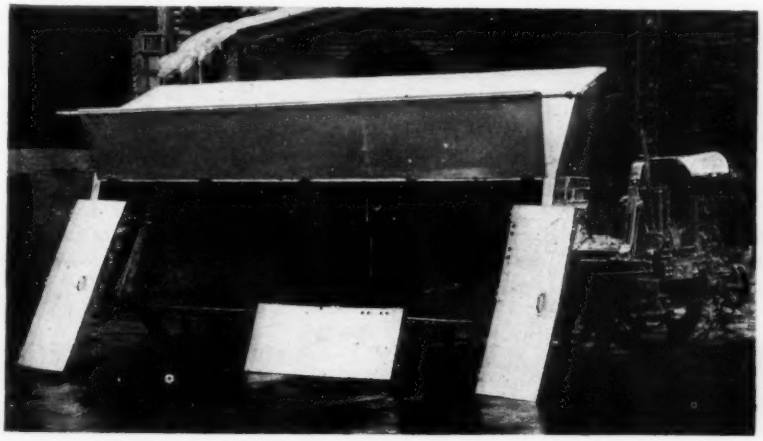
To simplify refuse collection at a veteran's housing project, Ray D. Sullivan, the commissioner of public works in Shorewood, Wis., is using a four-wheel, solid-tired dump trailer as a "king-size" refuse can for the entire project.

Shorewood's project has thirteen buildings, containing twenty-six housing units that were built as an emergency measure from a former army barracks. There is only one entrance to each unit, and consequently the trailer prevents the unpleasantness of a garbage can in the front yard. Tenants are billed for gas and electricity but not for water, and they receive free garbage and refuse collection service. The homes are gas heated and consequently do not have ashes to handle.

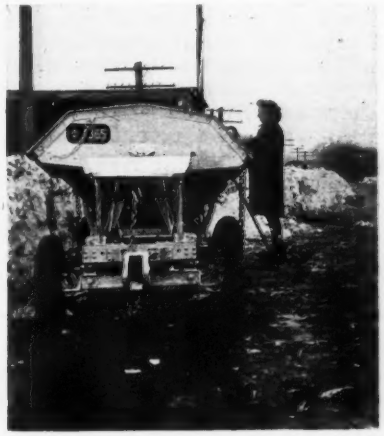
Rather than leave garbage cans in the open where they would be subject to weathering and deterioration, Mr. Sullivan designed an all-metal hinged-top trailer and had it built in the Shorewood shop. Half of the top is fastened on permanently so it can be dumped only from one side. The other side has one large hinged cover and three small ones. When dumping, the large cover is turned back and hooked. The three small ones are removed by pulling the hinge pins.

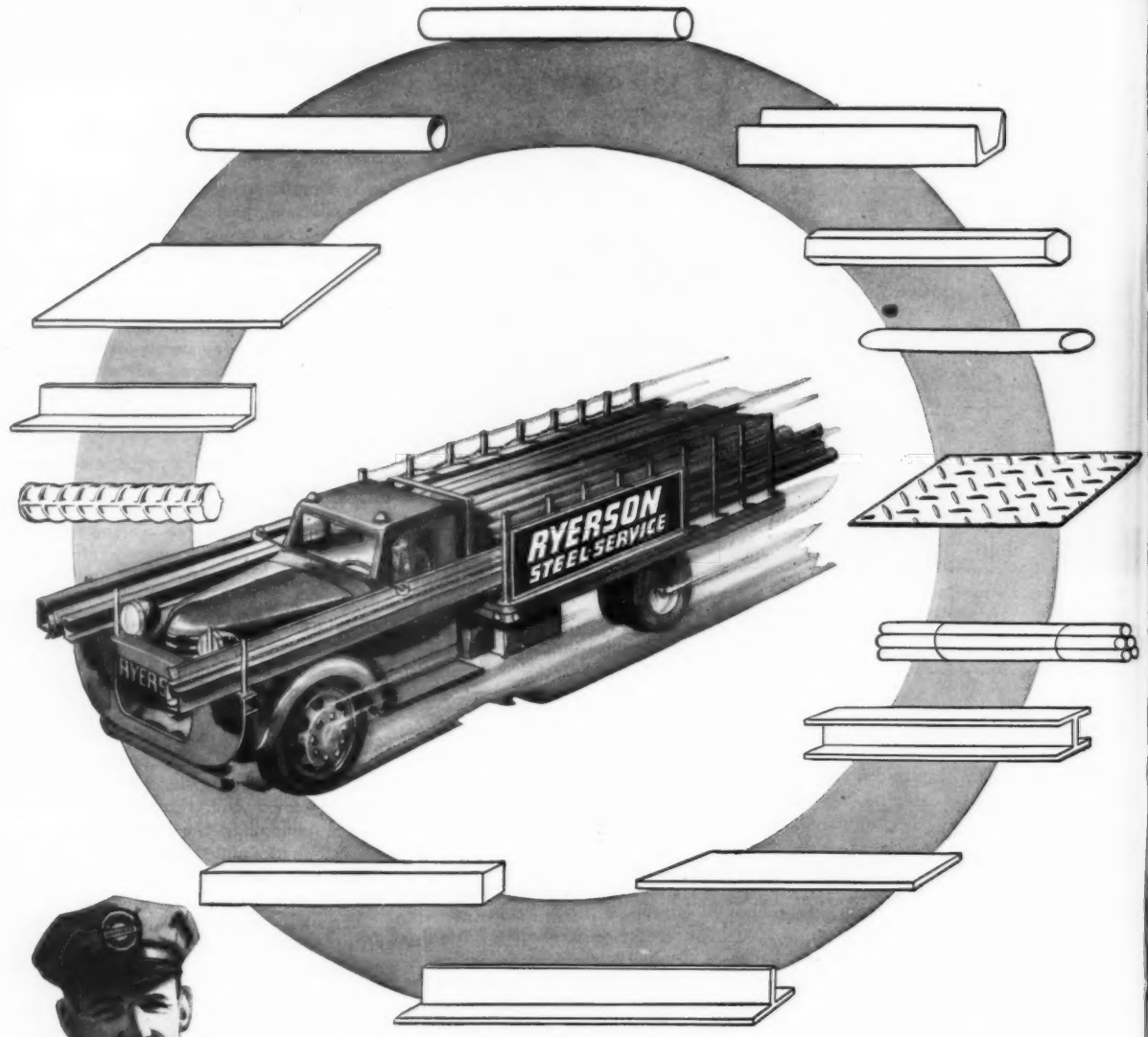
Tenants are instructed to break up boxes and other bulky refuse before depositing it in the trailer. When standing on the welded metal stand hooked to one side, women or children can easily lift one of the three small covers. During the winter, it is emptied at least twice a week. It is always washed clean after each dumping, and in summer is sprayed with a germicide.

The trailer-type metal unit substitutes for small individual refuse cans. It was designed and built in Shorewood, Wis., for a veterans housing project.



The Shorewood "refuse can" has a hinged top and welded metal drop step.





when it comes to steel—

Our Business is YOUR Business

For more than a hundred years, each step forward in American industrial methods has been faithfully reflected in the specialization and development of Ryerson steel. With the coming of each new manufacturing technique, the scope of Ryerson stocks has been increased to include the potential requirements of the operation. And Ryerson service methods have been steadily developed to meet the ever-growing demand for speed and dependability.

During these days of critical shortages, Ryerson policy of prompt personal attention to each order remains the same. Whether your requirements are measured in pounds or tons, they receive the immediate consideration of experienced steel men. And if the steel you need is not readily available from stock, every effort will be made to find an alternate to serve your purpose.

So contact Ryerson when the continued progress of your operation depends on steel. Whether your business consists of a one-room machine shop or an industrial empire, you are always assured of our fullest cooperation and the benefit of unequalled service facilities.

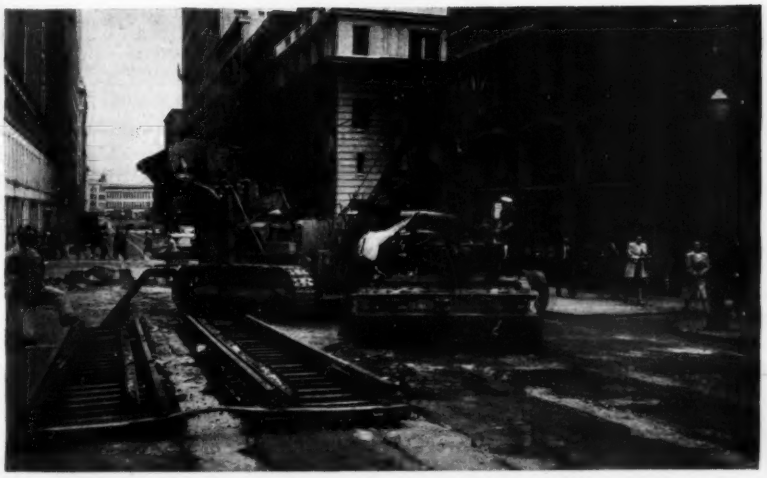
Joseph T. Ryerson & Son, Inc., Steel-Service Plants: New York, Boston, Philadelphia, Detroit, Cincinnati, Cleveland, Pittsburgh, Buffalo, Chicago, Milwaukee, St. Louis, Los Angeles.

RYERSON STEEL

Leaf-Gathering Operations at Englewood, Colo.

Englewood, Colo., uses a Traxcavator to gather leaves in the fall and for snow removal in the winter. The tractor has flat shoes to prevent damage to paving.

Streets are cleaned even with cars in place as Paris, Tenn., washes away the grime of winter. The flusher is an 800-gallon Standard Steel Works tank carried on a Ford 1½-ton truck.



A Caterpillar tractor, equipped with a special boom and a Trackson Traxcavator, loads street car rails on a heavy duty trailer in a recent street improvement.

Street Construction and Maintenance

Three Facts About Concrete

HERE are some characteristics of concrete that you may find handy to know. They are included in the Portland Cement Assn.'s recent bulletin, R/C 18.

1. Concrete will expand and contract on an average of 0.66 inches per 100 feet for a temperature change of 100°F.

2. Because of drying, concrete will shrink from 0.0002 to 0.0005 per unit. For each 1% increase in mixing water the shrinkage will increase about 2 percent.

3. When concrete is continously stressed, there is a gradual yielding in the direction of stress application, known as "creep" or "flow." The magnitude of this yielding ordinarily is 0.000001 per unit of length per psi.

These data are part of a discussion entitled, "Volume Changes in Concrete", and can be obtained upon request from the Portland Cement Assn., 33 West Grand Ave., Chicago 10, Ill.

Univ. of Michigan Offers New Program

THE Board of Regents of the University of Michigan has approved a new program and field of specialization, Municipal Engineering Administration.

Qualifying students for the degree of Master of Science in Engineering, the new program will be in municipal and public administration under the direction of the Department of Civil Engineering in cooperation with the Institute of Public Administration.

The program encompasses at least thirty hours of course work balanced between the fields of civil engineering and public administration.

Sealing Pays Off

KANSAS CITY'S street sealing program, described last year by former Director of Public Works, K. K. King (see p. 91, July 1946) has made a big difference in this year's street maintenance. The Commissioner of Streets and Sewers reports that he has made a check of the downtown area and principal thoroughfares, giving them direct personal examination and has also received reports from the residential areas that the streets are in excellent shape even after the winter weather. The sealing operations, he reports, make it possible for him to reduce the amount of maintenance work that normally is associated with the spring season.

24 Hours A Day

Nearly 2000 fires — on an average — occur daily in the U.S.A. and Canada. Every fire destroys property and most fires endanger human life.

Whenever Fire Occurs

The Fire Alarm Telegraph System, owned and operated by the municipality, provides the only means — *ALWAYS ON DUTY* — for calling the Fire Department.

Public Safety Demands

A Fire Alarm Box — quickly accessible to any citizen — in residential as well as in business districts — and Life Hazards such as schools, hospitals and other institutions should receive special consideration.

Write for pamphlet — **"The Fire Alarm Factor"**

THE GAMEWELL COMPANY

NEWTON UPPER FALLS 64, MASSACHUSETTS

IN CANADA: NORTHERN ELECTRIC COMPANY LTD., MONTREAL

Ground Aircraft Fire Fighting with Fire Department Equipment

FIRE fighting as applied to actual aircraft fires is still in its infancy as far as most municipal fire departments are concerned. The Air Forces define crash fire fighting as "a specialized, hazardous, and extremely important branch of the science of combating fire." Although fire must be expected when an airplane crashes, every precaution should be taken to prevent a fire from starting or spreading. Such fires generally spread with exceptional speed and violence, and rescue work must be done almost instantaneously. Nowhere else in the fire fighting field do split seconds count for so much. The Army and Navy even regard the mental attitude of a crash fire fighter as of utmost importance. They explain, "He must be unshakably determined to save life, he must be well trained, fast thinking and quick acting." Success, of course, also depends on apparatus and equipment, but a high degree of skill in its use is of particular importance.

Qualifications Needed

For firemen to fight airplane fires intelligently, and particularly to perform rescue work, it is highly essential that they have some knowledge of airplane construction. This may be accomplished by enlisting firemen who have had previous experience in this field or by enrolling certain firemen in mechanics' courses, which are regularly conducted by the airlines and the Air Forces.

During the war much specialized equipment was developed and built for handling such fires. Some of the larger fields had at their disposal mobile equipment valued at over $200,000. It is best, however, to consider how the equipment usually found in the average city or town fire department may be used and to suggest a few additional tools and minor equipment that have been found helpful. Much of this equipment will serve advantageously in any field of fire fighting.

Experience in connection with crash fires has shown, generally speaking, that no single extinguishing agent is sufficient. Only when the various pieces of equipment are properly teamed up together can maximum efficiency be attained.

Each of the three common fire fighting agents—water, foam, and carbon dioxide—has its particular use and its limitations. Their form and application affect their efficiency.

The effectiveness of water fog or the spray application of water in airplane fires and rescue work is remarkable. Facilities for this type of fire fighting can be made by adding fog or spray nozzles and applicators to regular booster equipment or pumpers.

Foam, to be effective on airplane fires which involve spills, must be applied at a high rate. It must be remembered that foam is fundamentally bubbles and may be broken down and dissipated by rough application, such as excessive pressure, or exposures to heat, or by water streams. Since the principal effectiveness of foam, when used on this type of fire, lies in its smothering effect, the value of a foam blanket on burning surfaces is immediately lost if the blanket is broken.

Carbon dioxide is effective on small or hidden fires because the discharge penetrates remote and inaccessible places. Control of large fires by this method calls for special equipment capable of giving a discharge of gas large enough to cover the fire completely.

Most of the minor equipment ordinarily carried on fire apparatus is useful in aircraft fire fighting, but some special appliances also are desirable. These include a portable lighting plant, plastic face shields, saws of various types, bolt cutters, tinner snips, special crash axes, explosion-proof flash lights, crash knife, wood plugs, and vise pliers for plugging or pinching off, and sealing tubing.

Ordinary, well-lined, bunker running clothes, plus a hood with facepiece or a plastic face shield, heavy leather gauntlet gloves, and boots afford protection to the most vulnerable parts of the body.

Fire Prevention Winners

ALTHOUGH fires on the whole are taking their heaviest toll since 1933, many cities throughout the country, through organized effort, have reduced their fire losses from last year. The Fire Waste Council of the United States Chamber of Commerce estimates that the work done by the local fire prevention committees, under the direction of local chambers, saved more than $20,000,000 in fire loss in 1946.

Cities participating in the National Fire Prevention contest are divided into six population classes. Winners in each of these classes for 1946 are: Chicago, Ill.; Cincinnati, Ohio; Tulsa, Okla.; Newton, Mass.; Mansfield, Ohio (grand winner); and Beatrice, Neb.

In each population class, besides the awards of specially designed plaques for the top winner, a number of runner-up cities are cited for honors.

Cities that were cited for honors follow:

Class I—Detroit, Mich; Buffalo, N. Y.; Minneapolis, Minn.; Milwaukee, Wis., and Philadelphia, Pa.

Class II—Providence, R. I.; Atlanta, Ga.; Rochester, N. Y.; Kansas City, Mo.; Dallas, Texas; Louisville, Ky.; Toledo, Ohio; Houston, Texas; Columbus, Ohio, and Indianapolis, Ind.

Class III—Wichita, Kans.; Hartford, Conn.; Shreveport, La.; Spokane, Wash.; Austin, Texas; South Bend, Ind.; Oklahoma City, Okla.; New Haven, Conn.; Chattanooga, Tenn., and Scranton, Pa.

Class IV—Newton, Mass.; Decatur, Ill.; Terre Haute, Ind.; Orlando, Fla.; Pittsfield, Mass.; Lansing, Mich.; Schenectady, N. Y.; Alameda, Calif.; Bethlehem, Pa.; Portland, Maine, and Anderson, Ind.

Class V—Mansfield, Ohio; Parkersburg, W. Va.; Moline, Ill.; Fort Dodge, Iowa; Jamestown, N. Y.; Massillon, Ohio; Fargo, N. D.; Marietta, Ga.; Rock Islands, Ill.; Norristown, Pa., and Billings, Mont.

Class VI—Beatrice, Neb.; Port Angeles, Wash.; Bartlesville, Okla.; Stevens Point, Wis.; Fort Collins, Colo.; Columbus, Ind.; Van Wert, Ohio; Boulder, Colo.; Valley City, N. D.; Garden City, Kans., and Ridgewood, N. J.

Awards were presented to the winners and to the honor cities at the annual meeting of the Chamber of Commerce in Washington on April 28.

New Buildings Provide Parking

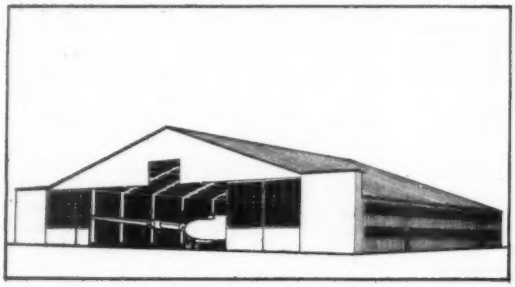
A POSSIBLE solution to the parking problem through the use of zoning was studied recently by the Eno Foundation.* The study showed that 70 out of the 586 cities responding now have parking ordinances. (The cities surveyed were of 10,000 population or more.) The conclusion was that ordinances generally should require the provision of adequate parking space on any lot on which certain residential buildings are to be erected.

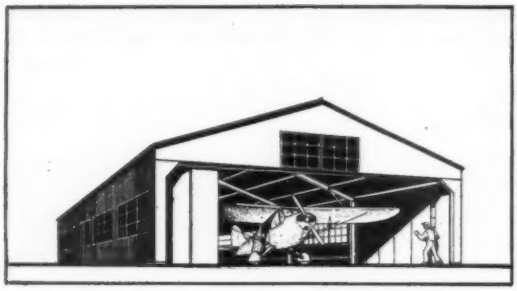
That the practice of requiring facilities when new buildings are to be erected is applicable to small communities, is shown by the new zoning ordinance of the town of Clinton, Tenn. (population 2,761). It requires that 200 square feet of parking space be provided (1) per family dwelling unit, (2) per room for tourist accommodations, (3) per ten seats in places of public assembly, (4) per four guest rooms for hotels, and (5) per five persons employed in industrial buildings.

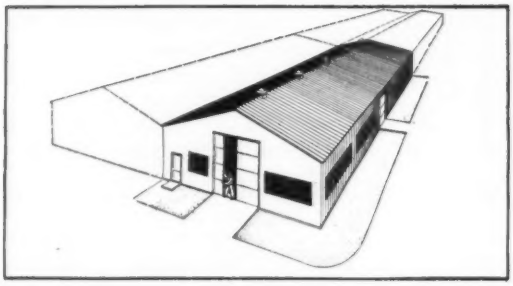
* See "Tackling Parking Through Zoning," page 109, THE AMERICAN CITY, February 1947.

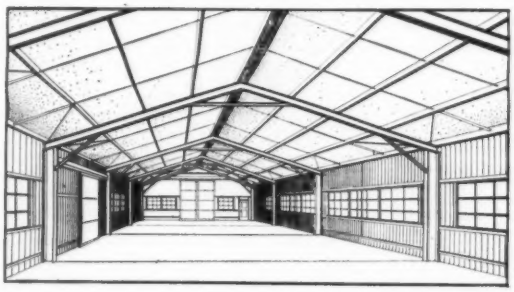
LURIA STANDARD BUILDINGS

FOR AIRPORTS AND INDUSTRY









MAINTENANCE AND STORAGE HANGARS

Luria Standard Hangars are available with clear door openings from 60 feet to 160 feet with contour clearances carefully chosen to accommodate all standard makes of planes. By allowing complete freedom of choice in length and in size and type of lean-to's, these Standard Units can be adapted to meet any combination of shop, storage and office requirements. All sizes of Luria Standard Hangars are designed in two weights — one to meet the load requirements of northern climates, and the other to effect the utmost economy for southern climates. Supplementing the Standard line, Luria is also prepared to design and furnish Hangars to meet any special requirements.

UTILITY HANGARS

Luria Utility Hangars are adapted from the Standard Industrial Building to provide a low cost, all purpose hangar for small planes. This building is particularly suitable for combination use requiring shop and storage space, offices and classrooms in one compact unit. Doors are precision built, pressed steel panels hinged together and hung on overhead track with self adjusting spring hangers. They are easily operated, rolling back inside building and providing a clear opening of 38'0" x 10'6".

INDUSTRIAL BUILDINGS

Luria offers a complete line of Standard Industrial Buildings varying in clear span widths from 40 feet to 100 feet with inside clearance at eaves ranging from 12 feet to 20 feet. All Luria Standard Buildings are permanent structures designed for maximum utility and flexibility. The unit system of expansion both in width and length combined with a choice in location of doors and sash provide unlimited variation in size and arrangement. These features allow a selection of combinations that are calculated to meet most individual requirements, thereby eliminating the expense of special engineering and gaining the benefit of production line economy. Simplicity of design featuring prefabricated frames of structural steel, insures easy handling and economical erection.

WRITE FOR BOOKLET AND PRICES

LURIA ENGINEERING CORPORATION

500 Fifth Avenue,
New York 18, N. Y.

First National Bank Bldg.,
Chicago 3, Illinois

A Sewerage Centralia

ALTHOUGH the effects in their case are not nearly so tragically dramatic, sanitary engineers should, nevertheless, be shrewd enough to grasp at least one lesson that the Centralia, Ill., mine disaster teaches: the lesson that danger exists when local authorities must enforce regulations that have national effect.

Mine safety, one might well argue, is basically a local issue and certainly one that should fall within the jurisdiction of the states. We can understand the sincerity of those who argue that they want no "government bureaucrats" making arbitrary decisions on mine operation.

Nevertheless, the state inspection broke down, allowing the conditions in the Centralia mine that snuffed out the lives of more than a hundred men.

Local vs. Federal Control

Recently, we attended a sewage works conference where we heard the opinion voiced that sewage treatment is a local affair, or at most a state responsibility. We heard the speaker bitingly denounce "Washington bureaucrats" who gave arbitrary decisions and who might force a community to supply a more thorough, more expensive treatment of its sewage. We actually heard the boast that the Mansfield bill was blocked by political maneuverings of a small group, representing a single sewer authority, on the grounds that it would be detrimental to *them*—without particular thought of the welfare of the rest of the nation.

Can we excuse a municipality or a sewer authority from providing adequate sewage treatment on the grounds of an economic hardship, any more than we can excuse mine owners who operate dangerous mines because adequate safety measures are expensive?

Can we forever expect all state boards of health to be beyond the reach of pressure from legislators who supply the funds that allow them to work? We are confident that state boards of health have higher professional standards than those mine inspectors who were allegedly soliciting for party funds at the same time that they were inspecting mines. Nevertheless, one would be blind to the facts if he did not agree that the hampering effects were still there.

To Make Advice Effective

Can we, in all seriousness, expect a national agency, organized for the purpose of preventing stream pollution, to be effective if it has only the power to *advise*, but has no power to *enforce?*

Does our longtime experience with established federal agencies such as the U. S. Public Health Service and the U. S. Bureau of Public Roads lead us to class them as arbitrary and irresponsible? Do we brand as "bureaucrats" such men as J. K. Hoskins, assistant Surgeon General of the U. S. Public Health Service and past president of the Federation of Sewage Works Associations, or Commissioner Thomas H. MacDonald of the Bureau of Public Roads, who has been for years acknowledged as an international authority on highway problems?

That Centralia mine disaster has focused national attention on many problems, and the very least of these relate to sanitary engineering. But this one point should be clear: that state control of certain problems that affect the welfare of our country is not always enough, and that establishing a national agency to control these problems, but with questioned authority to act, may produce disastrous results.

National legislation on stream pollution abatement measures, which has tried unsuccessfully to find its way through our Congress for these many years, rightfully falls in this category.

Delaware River Pollution Standards

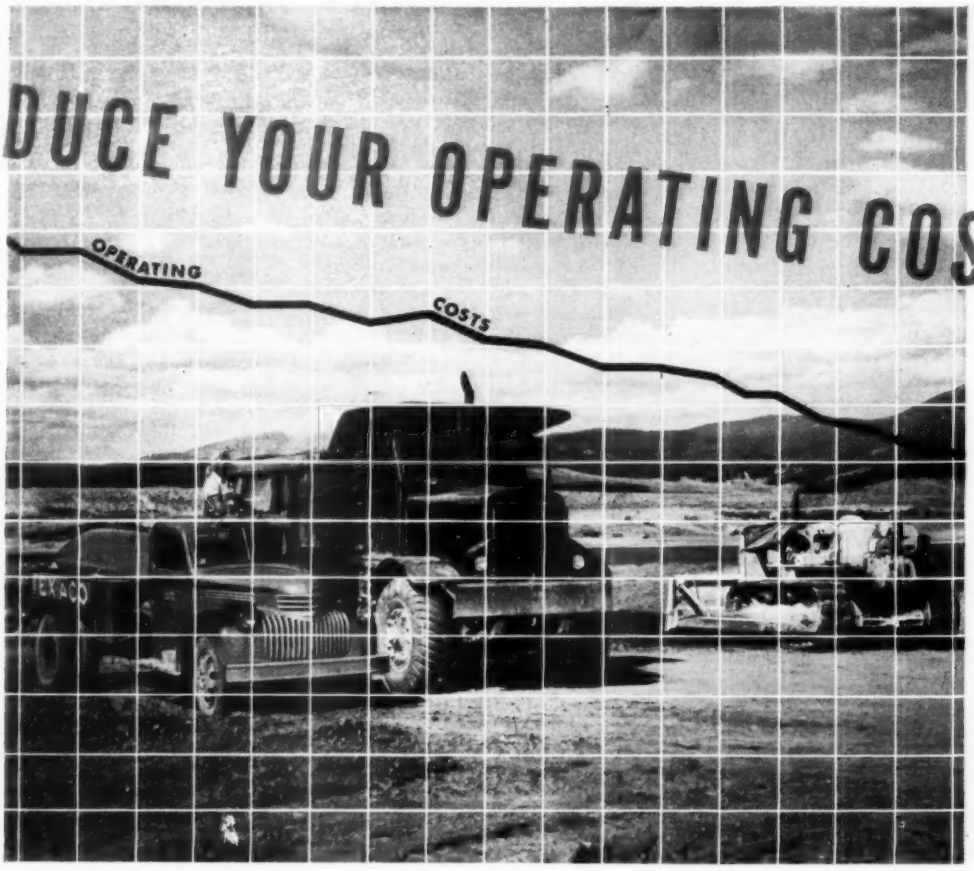
TO HELP control the pollution load on the Delaware River, New Jersey has established by legislative act four zones along the river and has prescribed minimum requirements covering the effluents that may be discharged into the river at each zone. These standards are as shown below.

Zone one covers that part of the Delaware and its west branch extending from the New York-Pennsylvania boundary to Trenton. Zone two extends from Trenton to the Pennypack creek in Philadelphia. Zone three extends from this point to the juncture at the river of the Pennsylvania-Delaware boundary line. Zone four covers the rest of the river to the Atlantic Ocean.

NEW JERSEY'S TREATMENT STANDARDS FOR DELAWARE RIVER AREA

Zone	*Appearance*	*Turbidity*	*BOD*	*Most Probable No Coliform Group*	*Toxicity*	*Nuisance*
1	Free of floating solids, color oil, grease, sleek, suspended solids.	Sufficiently free to cause no turbidity in the river.	85% reduction: 50 ppm limit, no greater DO drop than 5% in river.	Not more than 1 per ml in more than 10% of the samples. No sample to contain more than 100 per ml.	Sufficiently free of acids, alkalis, and other toxic substances so that it will not menace public health.	Free of offensive odors and of substances capable of producing offensive odors and tastes in public water supplies derived from the river.
2	Same	Same	85% reduction 100 ppm limit. No greater DO drop than 10% in river.	Not more than 1 per ml in 25% of the samples, no samples to have more than 100 per ml.	Same	Same
3	Same	Same	35% reduction or sufficient to insure a 50% oxygen saturation in the river. Also 55% reduction in suspended solids.	Effluent, if discharged within 2 miles of water intake, shall be chlorinated.	Same	Same
4	Same	Same	Sufficient to prevent nuisance. 55% reduction in suspended solids.	Effluent, if discharged within prejudicial distance from water works, shellfish area, or recreational area in use, shall be chlorinated.	Same	Same

REDUCE YOUR OPERATING COSTS



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*Texaco Ursa Oil X*** is fully detergent, dispersive, resistant to oxidation . . . made to keep engines clean . . . free from power-stealing sludge, varnish, carbon. *Ursa Oil X*** keeps valves lively and rings free . . . protects parts against wear and bearings against corrosion.

Texaco has lubricants and fuels for all contractors' needs . . . and a Simplified Lubrication Plan that adds economy to improved performance. Call the nearest of the more than 2500 Texaco distributing plants in the 48 States, or write The Texas Company, 135 East 42nd Street, New York 17, N. Y.

MAKE YOUR EQUIPMENT LAST LONGER

Lubricate trucks, tractors, graders, shovels and other equipment with the world-famous chassis lubricant — *Texaco Marfak*. It's longer lasting because it won't squeeze out under heavy loads, won't jar out in rough service. *Marfak* seals out dirt and moisture, too . . . protects parts better with fewer applications.

More than 250 million pounds of Marfak have been used to date!

TEXACO

TEXACO Lubricants and Fuels

FOR ALL CONTRACTORS' EQUIPMENT

Tune in . . . TEXACO STAR THEATRE presents the NEW TONY MARTIN SHOW every Sunday night. See newspaper for time and station.

Stop—Check and Mail

Please check over the list of interesting free catalogs on this and following pages. To obtain the literature you want, write direct to the manufacturers, or circle the identifying numbers on his coupon and mail it to The American City Magazine, 470 Fourth Ave., New York 16. We will see that catalogs are sent to you without expense or obligation.

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Cast Iron Pipe

673. Write to the Publicity Department, United States Pipe and Foundry Co., Burlington, N. J., for the company's catalog of Super-deLavaud centrifugally-cast iron pipe for water, gas, sewer, and industrial service. Manufactured in sizes from 3-inch to 24-inch, the pipe may be obtained with bell-and-spigot, mechanical joint, or with plain ends.

Where and How to Use Water Pressure Filters

674. For the most efficient water filtration and water softening, equipment should be individually designed to suit specific water conditions. For details on how The Refinite Corp., Refinite Bldg., Omaha 8, Nebr., constructs the equipment your city may need, write to the company for illustrative material.

Cotton-Jacketed Fire Hose

675. Combining strength and flexibility, the single- or double-jacketed fire hose produced by Boston Woven Hose and Rubber Co., P. O. Box 5077, Boston, Mass., is manufactured for a variety of pressures. For information write to The General Detroit Corp., distributors, 2270 E. Jefferson, Detroit 7, Mich.

Screening and Sludge Pump

676. A new pumping unit that does both sludge pumping and screening ejection is being manufactured by Yeomans Brothers Co., 1431 N. Dayton St., Chicago 22, Ill. For literature, write to the company.

Properly Applied Protective Coatings

677. To get the best service from non-corrosive and anti-rust applications, be sure the materials are properly applied. For information on Briggs' services, write for the free booklet, *Permanent Protection*, to the W. A. Briggs Bitumen Co., 3303 Richmond St., Philadelphia 34, Pa.

Power Grader and Attachments

678. A machine that can be adapted for many uses by means of attachments means a machine that is economical for your municipality's budget. The M-B power grader can be equipped with broom, scarifier, bulldozer blade, leaning front wheels, and Vee snow plow. For descriptive folder, write to the Meili-Blumberg Corp., New Holstein, Wis.

Septic Tank Cleaning Pump

679. The Gorman-Rupp centrifugal sewage pump, self-priming, features watertight, fly-proof, and entirely enclosed construction. Detailed information about the Odorless Sanitary Cleaner may be obtained by writing to Gorman-Rupp Co., 343 N. Bowman St., Mansfield, Ohio.

Remove Street Dirt and Snow

680. The Little Giant Power Sweeper mounts on all tractors and jeeps in less than an hour and a half, and operates from power take-off, easily removing rubbish and snow from streets or walks. Provided with a dust hood for the operator's comfort, the sweeper is set at a 30° angle to brush outside of the wheel path. For specifications, write Little Giant Products, Inc., 1.85 N. Adams St., Peoria 3, Ill.

Clear Marking for Safe Streets

681 Adequate street markings can prevent accidents. The Hunt Co., 3709 W. McNichols Rd., Detroit 21, Mich., has a large selection of posts and signs in stock, or will manufacture to meet your requirements signs and traffic markers that will help unusual traffic congestion. For folders with detailed information, write to the company.

Street Lights and Pole Hardware

682. The Joslyn Mfg. and Supply Co., 20 N. Wacker Drive, Chicago 6, Ill., has prepared a comprehensive 300-page catalog describing in detail the devices and mechanisms required for overhead lighting and power lines. In addition to construction and specification details of luminaires, there are detailed descriptions of all the component parts.

Control Water and Sewage Levels Electronically

683. Catalog 147 explains how to eliminate the need for moving mechanical parts when controlling the level of water-storage reservoirs, sewage wetwells, and other points of liquid storing. B/W controllers give the safety and consistent operation that an all-electric system can insure. They make it possible to control the level to close and accurate tolerances and at as many levels as your specific requirements call for. Write to the B/W Controller Corp., Birmingham, Mich.

Gasoline-hammer Paving Breaker

684. The Syntron Co., 430 Lexington, Homer City, Pa., will send you its illustrated folder describing the completely self-contained paving breaker which has neither compressor, hose, battery box, nor cable.

Air Compressor Lubrication

685. The Texas Co., 135 E. 42nd St., New York 17, N. Y., has available for limited distribution a new booklet describing portable air-compressor lubrication, fully illustrated and very detailed.

One-Man Portable Saw

686. For felling trees, sawing logs, and clearing brush, the Lother C-Saw is fast, simply operated, and of moderate price. It leaves a 6-inch stump or cuts at ground level. The 1947 model has a power drive and finger tip control. Literature is available from Harvey A. Lowther Company, 141 West Jackson Blvd., Chicago 4, Ill.

Drill Post Holes Quickly

687. Officials in charge of light, water, sewer, park, and street departments may obtain information about drills for earth, muck, sand, or clay hole drilling. These drills may also be used for testing water or gas leaks. Write to Ka-Mo Tools, Inc., 5525 W. Ohio St., Chicago 44, Ill.

Rubber, Cord, Plastic, and Steel Matting

688. The American Mat Corp., 1797 Adams St., Toledo 2, Ohio, will send upon request its folder, *A Mat for Every Purpose*. This booklet describes the best type of mat to use on various surfaces, and gives a detailed description of the company's rubber, cord, fabric, plastic, galvanized steel, and neocord matting.

Motor Vehicle Fires Extinguished

689. *How to Put Out a Motor Vehicle Fire* is the title of the booklet that tells what to do until the fire department arrives. Illustrated and specific in detail, the booklet may be obtained by writing to The General Detroit Corp., 2270 E. Jefferson Ave., Detroit 7, Mich.

(*Continued on Page* 23)

Evening Chronicle

ALLENTOWN, PA., THURSDAY, MARCH 6, 1947

Entered as Post-Office

City to Install 1200 Parking Meters; Contract Is Awarded

Here's Meter Chosen for Allentown Parkers

Manufacturer Agrees To Supply Automatic Type Machine Within 60 Days; Engineers To Make Survey To Determine Location; Action Ends Weeks of Council Deliberation

After deliberating for more than two weeks city council today awarded a contract to the McGee-Hale Park-O-Meter Co., Oklahoma City, for the installation of approximately 1,200 parking meters along city streets.

Members of council announced that the Park-O-Meter, an automatic device, was chosen for three reasons:

1. Because of its ease of operation.
2. Because it appears it will require less maintenance than other meters considered.
3. Because of the novel method of coin collection.

The Oklahoma firm has agreed to supply the meters within 60 days at a cost of $65 each

Five manufacturers submitted bids to council on Feb. 19. These bids ranged from $61 to $79.50. Three of the five meters offered were manually operated, while the others were automatic devices. The automatic which was not chosen by council was priced at $77.

Study Reaction

Since receiving the bids council held a number of conferences at which meters were discussed. This week the city officials visited Eastern Pennsylvania cities to learn motorist reaction on various types of meters.

They report that in all cities where Park-O-Meters are installed, motorists and others questioned appeared to be greatly pleased with the operation of the devices.

Engineers of the meter manufacturers will make a survey of Allentown to determine where the devices should be installed.

Tentative plans call for placing the meters on 5th, 6th, 7th, 8th, 9th, 10th, [illegible] Linden and Turner Sts. No [illegible] installed in Hamilton [illegible] plans to [illegible]

and this will be just as true in your city as it is in Allentown!

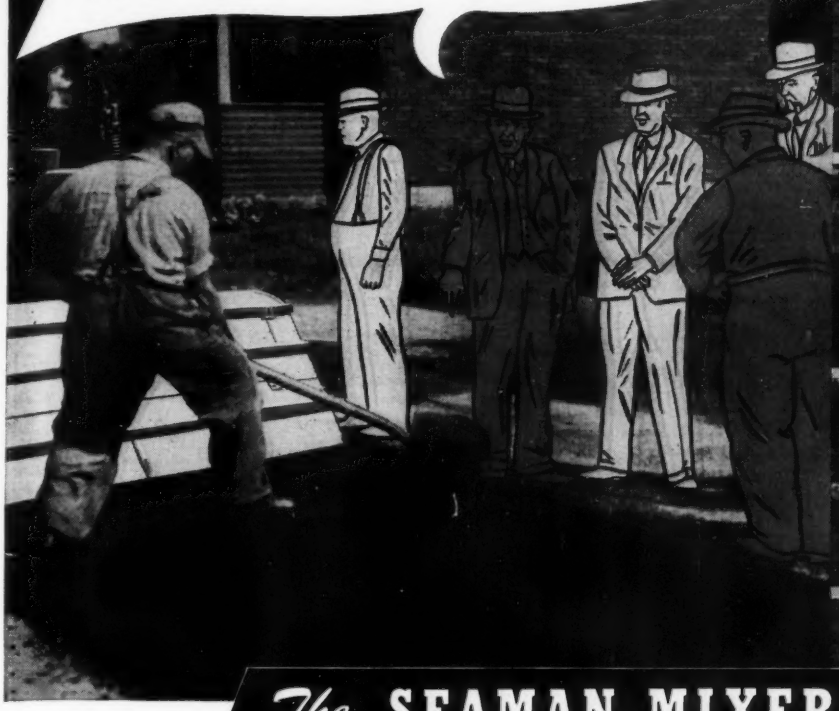
Magee-Hale PARK-O-METER COMPANY

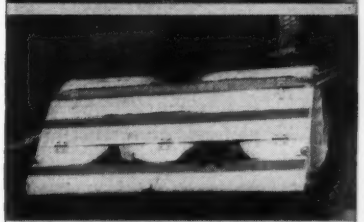
COMMERCE EXCHANGE BUILDING • OKLAHOMA CITY 2, OKLAHOMA

MACNICK COMPANY, *Manufacturers*, TULSA, OKLAHOMA

COMMITTEES THE COUNTRY OVER FIND:

IT'S PLANT MIX QUALITY AT ROAD MIX COST!



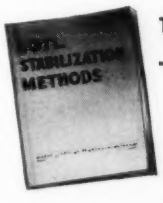


The SEAMAN MIXER

ENGINEERS and CONTRACTORS recognize today that with the SEAMAN MIXER there are no uncertainties and no variables in the mix produced. In thoroughness, in control of voids and in high daily production the work of the SEAMAN meets the strictest specifications; — no better mix can be obtained with any equipment of any type.

But more, the SEAMAN can control certain inescapable conditions that often occur in road construction. For example, if pit run aggregate is used in bituminous construction, frequently the fines are found in one area of the treatment and coarse material in another. By the application of more oil to the fines, — less to the coarse, — two passes of the SEAMAN compensate for the irregularity and prevent "rich" or "lean" spots from appearing. Furthermore, the "carry" of mixed materials within the mixing hood averages the mix and in itself promotes uniformity.

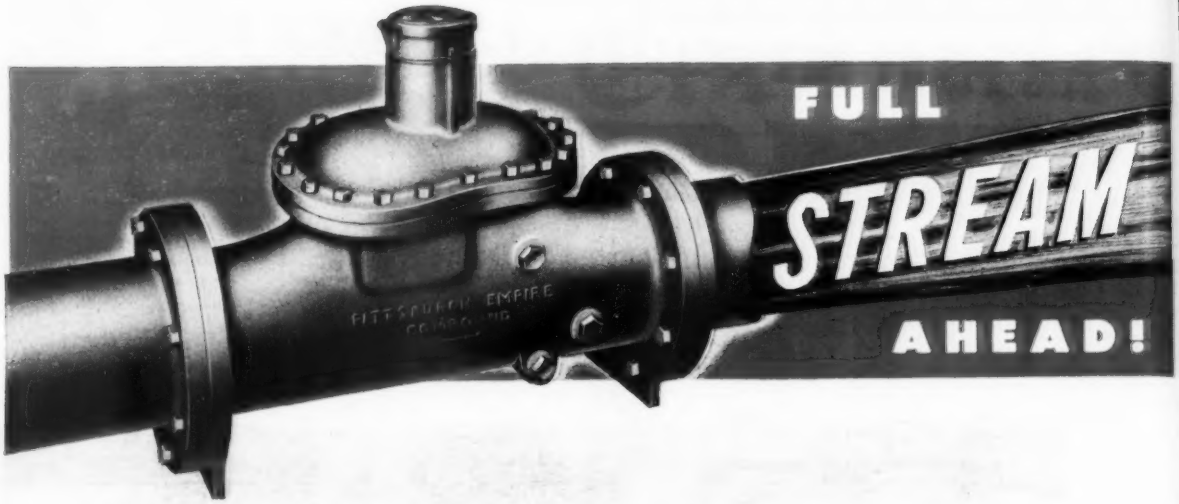
These and many other advantages are SEAMAN characteristics, — all at the low-cost that prevails in road-mix operation.



As popular as ever, — this handy, practical book, "Soil Stabilization Methods" — compiled by Seaman engineers. Have you sent for your copy? Ask for Bulletin AC-25.

SEAMAN MOTORS, INC.

Milwaukee 3, Wisconsin



NO BRAKES ON LINES FITTED WITH

PITTSBURGH - EMPIRE *Compounds*

The Pittsburgh-Empire Compound largely eliminates the pressure loss bottleneck that has previously been a trial on lines fitted with compound meters. Alone among meters of this type, the Pittsburgh-Empire has a straight through flow passage for all volumes measured by the propeller unit. (See diagrams below).

Two design features make possible minimum pressure absorption. (1) The propeller is horizontally mounted on roller bearings to freely rotate in the direct path of the incoming stream. (2) A counter balanced swing action valve, located immediately behind the propeller, pivots upward to full open position where it offers negligible resistance to the flow. In all sizes propeller cage and valve orifice diameters are at least equal to actual pipe size. Accordingly, large volume flows are handled with dispatch and without change of direction of the flow. Turbulence is also overcome. This meter operates quietly.

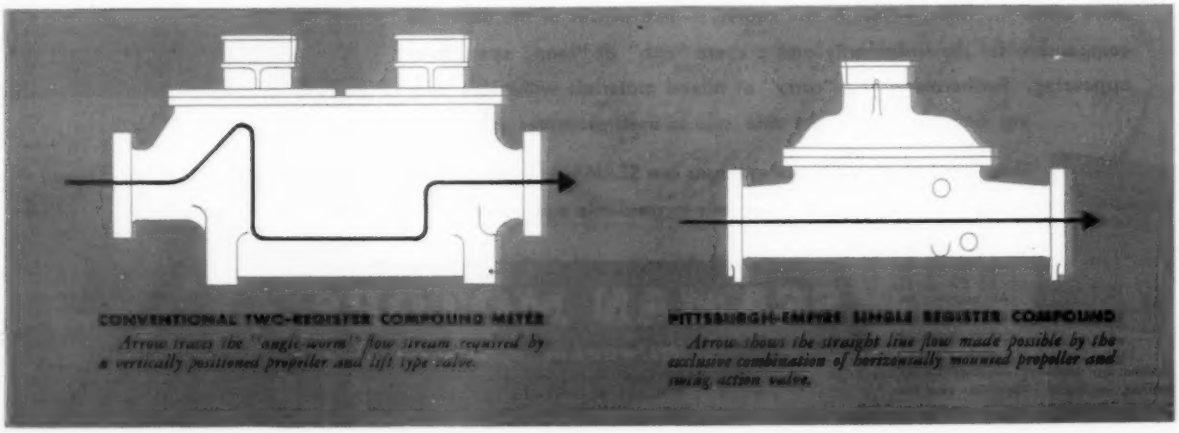
Now is a good time to check all the features of the lightweight, compact, single register Pittsburgh-Empire Compound. To get the full facts write your nearest sales office for a copy of bulletin W-803.

ROCKWELL

PITTSBURGH EQUITABLE METER DIVISION

Rockwell Manufacturing Company, Pittsburgh 8, Pa.

Atlanta Boston Chicago Houston Kansas City Los Angeles
New York Pittsburgh San Francisco Seattle Tulsa



CONVENTIONAL TWO-REGISTER COMPOUND METER
Arrow traces the "angle worm" flow stream required by a vertically positioned propeller and lift type valve.

PITTSBURGH-EMPIRE SINGLE REGISTER COMPOUND
Arrow shows the straight line flow made possible by the exclusive combination of horizontally mounted propeller and swing action valve.

Stop—Check and Mail

Use Coupon on Page 19

Venturi Tube Details

690. Two bulletins may be obtained from The Simplex Valve & Meter Co., 68th & Upland Sts., Philadelphia 42, Pa., on accurate measurement of water, oil, and similar liquids. Bulletin No. 210 describes the company's parabolic flumes, and No. 450 discusses the Type TG Insert Venturi tubes and nozzles.

Low-Cost Mowing

691. Municipal parks can be mowed smoothly and inexpensively regardless of the contour by a machine that eliminates most hand trimming. Roseman roller drive gang mowers, with 30-inch reels, closely follow ground contours without scalping, gouging, or bobbing. For illustrative literature, write to the Roseman Tractor Mower Co., Evanston, Ill.

Diesel Crawlers for Heavy Jobs

692. International diesel crawlers incorporate quick starting, operating economy, and strong lugging ability. Neither pushers nor snatch tractors are needed to work with the crawler. For additional data, write to the International Harvester Co., Industrial Power Div., 180 N. Michigan Ave., Chicago 1, Ill.

Full Line of Office Machines

693. Burroughs will mail upon request information on any of its calculating machines, its cash registers, or its nationwide maintenance service. Included in the line are adding, calculating, accounting, billing, and statistical machines. Write to the Burroughs Adding Machine Co. 6071 Second Blvd., Detroit 32, Mich.

New Blueprinting Machines

694. The new Revolute M4 for high speed production of blue-prints, white-prints, vandyke prints, and blueline prints, utilizing the revolving contact principle for providing slip-free and static-free contact is described fully in a folder being issued by the manufacturer. Write Paragon-Revolute Corp., Rochester 4, N. Y.

Stop Stream Pollution

695. Polluted streams are a definite menace to health, and the facility with which they can be purified makes pollution inexcusable. Solvay Liquid Chlorine, manufactured by the Solvay Sales Corp., 40 Rector St., New York 6, N. Y., is a standard method for treating sewage-polluted water. Write for details of application.

New Plug for Testing Mains

696. A new plug for testing mains carrying water, gas, oil, or air, which does not require valves and withstands 300-pound hydrostatic pressure, is being manufactured in a wide variety of sizes by the Test Plug Mfg. Co., Skokie, Ill. Send for the company's circular.

Fences for Protection

697. A 24-page booklet titled, *Wickwire Spencer Chain Link Fence*, showing proper fence and fittings for various types of property protection will be sent to you upon request by the Chain Link Fence Dept., Wickwire Spencer Steel, 361 Delaware Ave., Buffalo 2, N. Y.

Modern Accounting Methods

698. To obtain the most service from municipal filling and accounting methods, it is necessary that modern and up-to-date equipment be used. For detailed information on tax, budget, payroll, public works, education, health, and other municipal accounting applications, write the International Business Machines Corp., World Headquarters Bldg., 590 Madison Ave., New York 22, N. Y.

Property Revaluation For Tax Equalization

699. If the tax valuation figures of properties in your municipality are obsolete, appreciable revenue is being lost. Citizens no not object to increased taxes which are fair and equitably determined. For information about revaluation of property, write The J. M. Cleminshaw Co., Appraisal Engineers, Union Commerce Bldg., Cleveland 14, Ohio.

Power Mowers In Various Sizes

700. Rotoflo Power Mowers, 563 Oak St., Kansas City 6, Mo., can supply your municipality with four models of power motors, with swaths of 21 inches down to 16 inches, 2½- to ⅝-hp engines, all with 2-cycle engines. For detailed specifications, write to Rotoflo.

How Aerial Surveys Work

701. A publication, *Aerial Surveys Aid Highway Location*, just issued describes how large areas can be surveyed from the air and topographic maps made to 2-, 5-, 10-, or 20-foot contours from aerial photographs at a considerable saving over the cost of conventional ground surveys. The booklet was put out by the Aero Service Corp., 236 E. Courtland St., Philadelphia 20, Pa. It points out that the same basic method is applicable for city planning and zoning, transportation lines, flood control, and reservoir surveys.

2- and 4-Cycle Diesel Engines

702. For information on 2- and 4-cycle diesel engines in sizes up to 8,500 hp operating on oil or gas, write to the Nordberg Mfg. Co., Milwaukee 7, Wis. The company's engineers will give you specific information on your particular engine requirements.

Keep Your Municipality Clean

703. Wire baskets are not only a necessity for maintaining sanitary conditions in parks and on streets, but, when made of reenforced wire, they are easy to empty and clean. For details of sizes and cost, write the Norwich Wire Works, 47 Collins Court, Norwich, N. Y.

Versatile Tractor Unit Cleans or Digs

704. The Cletrac crawler tractor equipped with a Sargent Overhead shovel can be used for tearing up pavement, debris removal on street, or building jobs, digging, and backfilling trenches. For details, write The Oliver Corp., Industrial Div., 19300 Euclid Ave., Cleveland 17, Ohio.

Laboratory Equipment for Sewage and Water Analysis

705. Phipps and Bird, Inc., 6th and Byrd Sts., Richmond 5, Va., can supply more than 20,000 kinds and sizes of scientific laboratory apparatus. For a partial description of some of the firm's sewage and water treating apparatus, write for the bulletin *Modern Equipment for the Water & Sewage Laboratory.*

Water Softening

706. The Liquid Conditioning Corp., 114 E. Price St., Linden, N. J., will send upon request Bulletin 5, describing the applications, principles of operation, and equipment used for the most modern types of sodium and hydrogen zeolite water softeners and demineralizers. Flow diagrams and drawings of Liquon equipment, and process chemical reactions are also included in the bulletin.

Vibration-Less Air Compressors

707. The Davey compressors utilize aluminum alloys for rapid removal of heat to obtain peak valve efficiency, and new engineering principles to reduce vibration. For details, write the Davey Compressor Co., Kent, Ohio.

Storm-proof Emergency Lanterns

708. The Embury Air Pilot Lantern is constructed to give absolute dependability in all kinds of weather, and is effective even in strong winds. For details of construction, write the Embury Mfg. Co., Warsaw, N. Y.

Aerial Surveys

709. The science of photogrammetry has proven itself accurate and efficient. Aerial photographic maps and contour maps produced by aerial methods are precise in detail and are an aid in flood control, city planning traffic, tax-assessing and pipeline projects. Information may be obtained from Fairchild Aerial Surveys, Inc., 224 E. 11th St., Los Angeles 15, Calif.

F-M 2-Way Radio for Fire Cars

710. The speed and efficiency that police departments have obtained through the use of radio cars can now be acquired by fire-fighting units with the utilization of the Motorola F-M 2-Way Radiotelephone. Use has been approved by the FCC and WPB. For details, write to the Galvin Mfg. Corp., Chicago 51, Ill.

Cab-Ahead-Of-Engine Fire Equipment

711. An important innovation in the fire-fighting equipment field is the American-La France pumper with the cab placed in front of the engine. For information about this modern machine, write to American-La France-Foamite Corp., Elmira, N. Y.

Tunnel-Liner Plates

712. A high strength-to-weight ratio in tunnel-liner plates enables a single unskilled workman to carry, hold, and bolt into place a liner section. For data, write to Armco Drainage & Metal Products, Inc., 1195 Curtis St., Middletown, Ohio.

Pumps in Capacities to 4,000 GPM

713. Catalog M, distributed by the Aurora Pump Co., 66 Loucks St., Aurora, Ill., gives details of the company's pumps, available in capacities to 4,000 gpm and heads to 300 feet. Also manufactured are APCO turbine-type pumps.

Frost Proof Meters

714. Available in sizes from ⅝ of an inch to 12 inches, the Badger water meters are obtainable in frost-proof designs as well as in models for climates where there is no danger of freezing. For data, write to the Badger Meter Mfg. Co., Milwaukee 10, Wis.

Water Purification

715. Full particulars on Spaulding precipitators or spiractors for the purification of water will be sent to you from Dept. A-4, The Permutit Co., 330 W. 42nd St., New York 18, N. Y.; or Permutit Co. of Canada, Ltd., Montreal, Canada. City officials whose water purification plants are limited in size will be particularly interested.

(*Continued on Page 26*)

"we play safe with HTH!"

Laboratory—Three Rivers Filtration Plant

P. G. Fulkerson, Chief Chemist
E. A. Schott, Analytical Chemist
Leo R. Mathews, Supt., Three Rivers Filtration Plant

Water Dept., Fort Wayne, Ind.

Sterilizing a main with Sanitation HTH

For 12 years, the Fort Wayne Water Works has used HTH for sterilizing new or extended mains...for decontaminating broken mains before re-use. Liberal use of this dependable product for such purposes minimizes the possibility of contamination where surface water drainage is a factor.

HTH has long been a favorite everywhere. The reason? It satisfies the demand for *complete* protection . . . pleases water works officials who want a dependable chlorine carrier for regular, special or emergency chlorination.

To show the scope of Sanitation HTH, Mathieson offers water works men a free illustrated copy of "Hypo-Chlorination of Water." Send for this booklet—you'll read it! THE MATHIESON ALKALI WORKS (Inc.), 60 East 42nd St., New York 17, N. Y.

Mathieson
SANITATION HTH

Sanitation HTH is available in cases of nine 5-lb. cans and in 100-lb. drums.

Sanitation HTH . . . . Liquid Chlorine . . . . Chlorine Dioxide . . . . PH-Plus (Fused Alkali) Caustic Soda . . . . Soda Ash . . . . Bicarbonate of Soda . . . . Ammonia, Anhydrous & Aqua Dry Ice . . . . Carbonic Gas . . . . Sodium Chlorite Products . . . . Sodium Methylate

Civic Center, Denver, Colorado.
Photo by O. Roach

HARD hit by a polio epidemic last year, city officials of Denver, Colorado, called in a representative from the National Sanitation Foundation, Ann Arbor, Michigan, for suggestions to remedy the situation.

The first thing this sanitation official recommended was to cover all open dumps — the harboring places of disease-carrying insects. Denver officials readily followed his suggestion and immediately adopted the Drott Bullclam Shovel Method of Sanitary Fill for handling future refuse! With this clean, healthful method, all refuse is buried under two feet of earth — gone are the breeding places for flies, mosquitoes, reptiles and other menaces to health.

Like Denver, you, too, can help protect the lives of your citizens by closing your open dumps. Let us show you how efficiently and economically it can be done.

ADOPTS DROTT BULLCLAM SHOVEL METHOD OF SANITARY FILL...

DENVER'S POLIO FIGHTER

This Drott Bullclam Shovel, one of three units now owned by Denver, keeps uncountable germs from attacking citizens — destroys and prevents breeding places. Digs trenches into which refuse is dumped, compacts and covers it. Handles all operations!

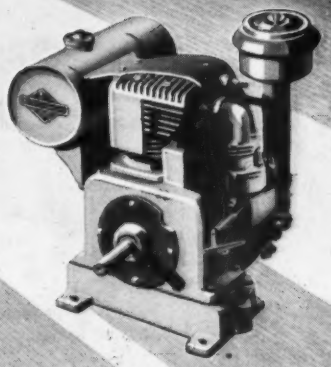
Operated by DROTT POSITIVE CLOSED HYDRAULIC SYSTEM • SMOOTH • QUICK • DEPENDABLE. Keeps dirt and air out . . . keeps oil in! Used successfully on Drott equipment for many years.

DROTT
EQUIPMENT

FREE
Get the Complete Story! Send for This Book—"Answer To Your Waste Disposal Problems . . . With the Drott Bullclam Shovel."

DROTT MANUFACTURING CORP.
(FORMERLY 1-W-WAY SERVICE CORP.)
4344 N. GREEN BAY AVE. MILWAUKEE 12, WISCONSIN

BRIGGS & STRATTON
ENGINES



designed **RIGHT**
built **RIGHT**••
the **"RIGHT" POWER**
for your equipment

The experience of an organization which has produced more than 2¾ million air-cooled engines is built into every Briggs & Stratton engine. Theories or hopes do not dictate the adoption of designs, materials or manufacturing methods — *actual experience and long testing do*. . . . The experience of users proves that Briggs & Stratton engines stand up under all kinds of service — year after year — proof that they are *designed right — built right — the right power for your equipment.*

BRIGGS & STRATTON CORPORATION
Milwaukee 1, Wisconsin, U.S.A.

Air-Cooled Power

Preferred Power FOR INDUSTRIAL CONSTRUCTION RAILROAD AND FARM EQUIPMENT

4 CYCLE BRIGGS & STRATTON GASOLINE ENGINES

Check and Mail

Use Coupon on Page 19

Repair and Line With Concrete

716. The cement-gun method of applying layers of cement to reinforce and repair concrete reservoirs and other structures has been found efficient and highly economical. For details and cost write for Bulletin No. 8, the Gunite Concrete and Construction Co., 1301 Woodswether Road, Kansas City 6, Mo.

Clean Water Mains

717. A Pittsburgh-Eric pipe reconditioning program means a thorough cleaning of water mains followed by coating of bitumen on the pipe interior, preventing further deterioration and reducing discoloration, tuberculation, and incrustation. For information, write to the Pittsburgh Pipe Cleaner Co., 133 Dahlem St., Pittsburgh 6, Pa.

Water Meter Accuracy

718. If your municipal water department has difficulty in obtaining accurate meter readings, you may be interested in investigating the performance record of the Hersey water meter. Write to the Hersey Mfg. Co., South Boston, Mass.

Oil Reservoir Automatically Oils Hydrants

719. The Mueller-Columbian hydrant possesses an oil reservoir in the dry-top bonnet section which eliminates the necessity of oiling the mechanism. Write to the Mueller Co., Decatur, Ill., for full details.

Steel Forms Speed Construction

720. Steel forms that can be used over and over again, are light in weight, and are variable in size and shape, will reduce construction time and cost. Write to the Irvington Form & Tank Corp., Irvington, N. Y., for its descriptive folders on steel forms for concrete construction of roads, sewers, tunnels, and other work.

G. E. Package Substations

721. A new seventy-eight-page publication (GEA-4500) presents data on a full line of package substations rated from 750 to 45,000 kva for utility and industrial power distribution, with components, ratings, and dimensions listed. Write to the General Electric Co., Schenectady 5, N. Y.

Simplified Filing System

722. The Kardex method of filing has been found to be of great value in municipal offices because the visible margin on cards saves time and eliminates the necessity of consulting separate lists—all the information is in the Kardex. The Systems Division, Remington Rand, Inc., 315 Fourth Ave., New York 10, N. Y., will send you additional data.

From Open Dump to Sanitary Fill in One Operation

723. The Cletrac crawler tractor equipped with a Drott Bull Clam is all the equipment that is necessary to transform open garbage dumps to sanitary fills. For literature on tractors, write The Oliver Corp., Industrial Div., 19300 Euclid Ave., Cleveland 17, Ohio.

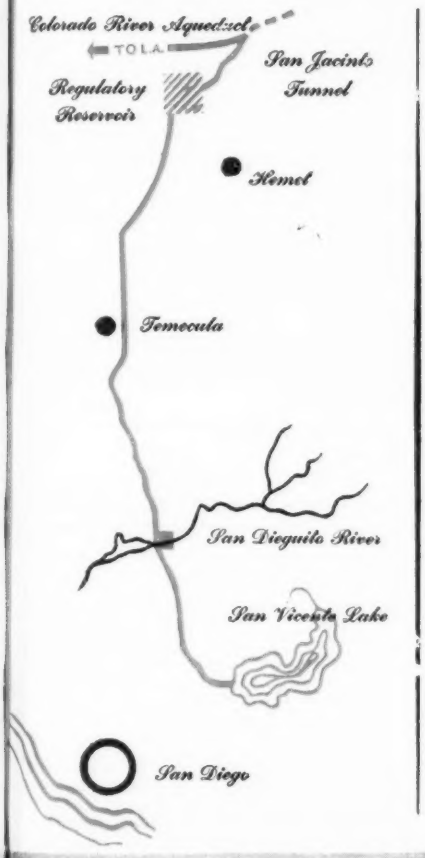
Water Meter Accuracy

724. The Pittsburgh Equitable Meter Div., Rockwell Mfg. Co., Pittsburgh 8, Pa., will send you upon request its catalog describing the exclusive balanced oscillating piston feature that insures long and accurate water-meter readings.

(*Continued on Page 28*)

Fabricating reinforcement cages
Form bands in left foreground.

ANOTHER MILESTONE IN WATER SUPPLY LINE CONSTRUCTION



Lock Joint Concrete Pressure Pipe will be used in over 90% of San Diego's great new 71.3 mile Aqueduct. It will combine high initial and sustained carrying capacity with long life, at low cost.

The last miles of pipe are now being poured for this vital supply line that will connect San Diego with the Colorado River Aqueduct. With diameters ranging from 48" to 96", this line provides another demonstration of advantages obtained by using Lock Joint Concrete Pressure Pipe for main water supply lines. Ample strength for higher operating heads (up to 550 feet in this aqueduct) water-tightness, permanence and low maintenance costs are proven by performance here and throughout the country. Economies in first cost, installation and operation have been shown under the full range of operating conditions.

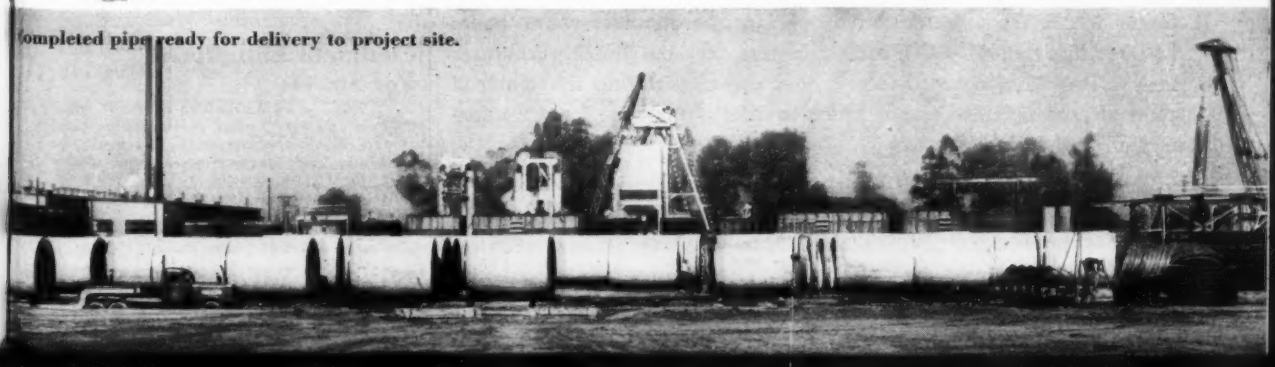
This Company has enjoyed a wide experience in the field of water supply line engineering and construction over a long period of years and this experience and training is available to water works officials and engineers. Information available upon request.

American
PIPE & CONSTRUCTION COMPANY

Concrete Pipe for Main Water Supply Lines, Storm & Sanitary Sewers, Subaqueous Pipe Lines

P. O. Box 3428 • Terminal Annex • Los Angeles 54, California
Main Offices and Plant—4635 Firestone Blvd. • South Gate, California
District Offices and Plants—Oakland • San Diego • Portland, Oregon

Quality pipe line products manufactured and installed by American include—
Lock Joint Concrete Cylinder Pipe • Prestressed Lock Joint Concrete Cylinder Pipe
American Concrete Cylinder Pipe • Centrifugal Concrete Pressure Pipe



Completed pipe ready for delivery to project site.

Trenton, New Jersey makes a wise choice

selects MI·CO PARKING METERS

Trenton's decision to buy MI-CO Parking Meters was the result of exhaustive tests under every conceivable condition, and on various makes of meters. And one of Trenton's neighboring cities, Plainfield, N. J., has also taken a big step forward in relieving traffic congestion by installing 950 MI-CO Parking Meters. MI-CO dependability and low-cost upkeep have been proved in scores of cities and towns where these meters have been in operation for years. Users have found that MI-CO Parking Meters pay out quickly because they are seldom out of order. If you are considering the metered plan of parking, MI-CO has much to offer you. Write for full information and case histories.

MI-CO METERS, 231 Court St., Covington, Ky.

Division of The Michaels Art Bronze Co., Inc., Covington, Ky.

Check and Mail

Use Coupon on Page 19

Metered Parking

725. Fully illustrated literature and case histories describing the results of Mi-Co parking meter installation will be sent to you by Mi-Co Meters Div. of The Michaels Art Bronze Co., 231 Court St., Covington, Ky.

Street Maintenance and Construction

726. Information about the Littleford Bros., Inc., 500 E. Pearl St., Cincinnati 2, Ohio, complete line of equipment for street construction and maintenance may be obtained by writing for Bulletin W-146. Described are the motorized-portable Trail-O-Roller, emulsion sprayers, tar and asphalt kettle, and utility spray tank.

Germicide and Disinfectant

727. A detailed folder giving information on the use of Pittchlor, a compound containing 70% calcium hypochlorite, has been prepared by the Pittsburgh Plate Glass Co., Columbia Chemical Div., Fifth Ave. at Bellefield, Pittsburgh 13, Pa. Form A-706 gives information on the germicidal, disinfectant, and deodorizing qualities of this substance.

New Sedimentation Unit Aids Water and Sewage Treatment

728. The New S-7 Dorr Clarifier offers an improved sedimentation unit with diametric ranges of 30 to 100 feet. Additional information and description of this clarifier that offers marked service improvements may be obtained by writing to The Dorr Co., 570 Lexington Ave., New York 22, N. Y.

Save Rebuilding Of Cement Structures

729. When concrete structures deteriorate, complete rebuilding and the consequent cost can often be eliminated by Gunite reconstruction. For "case histories", ask for Bulletin D2300, Cement Gun Co., Allentown, Pa.

Portable Asphalt Plants

730. The White Mfg. Co., Elkhart, Ind., will send you upon request a catalog of its portable asphalt plants. The wide range of sizes permits use in small repair jobs, as well as in larger construction work.

Stop Pipe Leaks

731. The Emergency Pipe Clamp can be used to stop leaks in pipelines without replacing the pipe. For details of application, write to the M. B. Skinner Co., South Bend 21, Ind.

Gasoline Hammer Pavement Breaker

732. The Syntron paving breaker is motored by a gasoline engine. The result is a mechanism that is completely self-contained: no compressors, hose, battery, cables. An illustrated folder will be sent on request by the Syntron Co., 430 Lexington, Homer City, Pa.

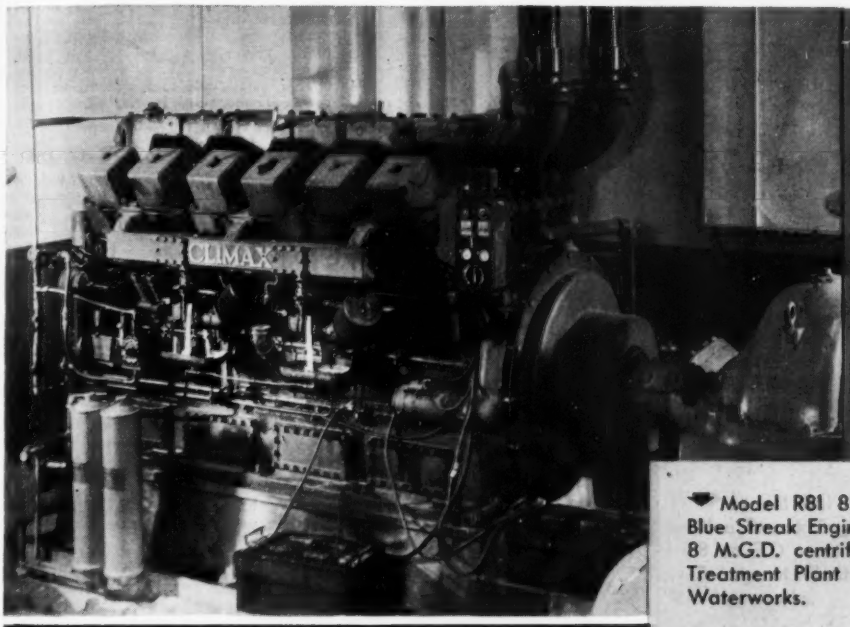
Complete Equipment For Streets

733. There is an Austin-Western shovel, grader, sweeper, roller, or crushing plant that will do your street and road jobs quickly and well from the original construction work to the maintenance and the sweeping. Write to the Austin-Western Co., Aurora, Ill., for data.

(Continued on Page 30)

INSTANT
DEPENDABLE
LOW-COST

POWER for Standby Service!



NOTE: In continuous service Climax Engines have established records of as high as 60,000 hours without major overhaul on pumping operations (data available on request).

Wilmington, N. C. Waterworks adds to its Climax standby equipment at King's Bluff Pumping Station new Model V-495, 12 cylinder, 7x7, Climax Blue Streak Engine direct connected to 5600 G.P.M. centrifugal pump.

Model R81 8 cylinder 6x7 Climax Blue Streak Engine direct connected to 8 M.G.D. centrifugal pump in Water Treatment Plant of Wilmington, N. C. Waterworks.

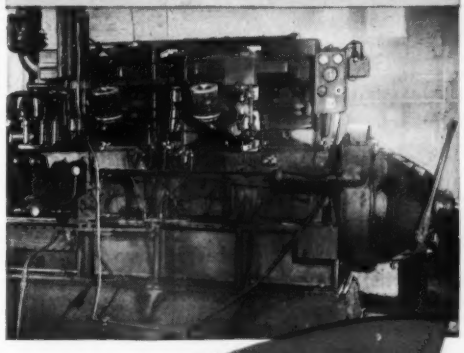
IN WATERWORKS from coast to coast (as well as in stations of waterways and dams) Climax Engines are increasingly specified by engineers, not only for their dependable value during purchased power outages—but as an aid in keeping down maximum demand charges during unusual or unexpected periods of peak water demand.

Their reliability has been a factor in giving municipalities a low insurance rating by the National Board of Underwriters.

Climax Engines for standby service are 4, 6, 8 and 12 cylinder, 4 cycle types, rated from 40 to 495 horsepower. They operate on gasoline, butane, by-product or natural gas. Climax Generating Sets are from 5 kw to 312 kw.

For complete information, bulletins or engineering consultation, write Climax Engineering Division, Climax Industries, Inc., Clinton, Iowa.

WRITE FOR BULLETIN on New, Compact, Heavy Duty Climax V8 Engine (330 h.p. at 1200 r.p.m.). A powerful, instant-starting, smooth-running, flexible prime mover that occupies unusually small space.



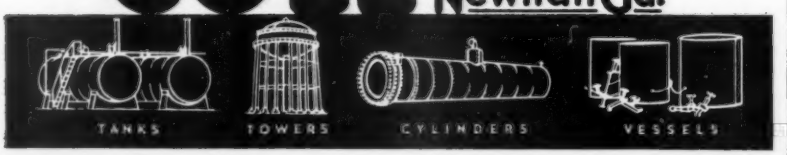
climax
BLUE STREAK ENGINE
Builder of Climax DIESELS and GENERATING SETS
CLIMAX INDUSTRIES INC.

COLE TANKS

Cole elevated tanks are *correct* in design. Their simplicity contributes to their low cost of maintenance. Capacities 5,000 to 2,000,000 gallons — with hemispherical, ellipsoidal or conical bottoms. Also flat tanks for storage of butane and propane gas. Correctly built, in accordance with ASME specifications.

We invite your inquiries. A large and experienced engineering department is at your service. State capacity, height to bottom and location.

R.D. COLE MFG. CO. ESTABLISHED 1854
Newnan Ga.



Check and Mail

Use Coupon on Page 19

City Management

734. Available to all cities and towns on a subscription basis is a Management Information Service established by The International City Managers' Association, 1313 E. 60 St., Chicago 37, Ill. Recent reports have been issued to subscribing cities on *Making Pay Adjustments for City Employes, Trends in Municipal Revenues, Factors in Reducing Work Week for Firemen, Municipal Regulation of Taxicabs, Unions in Police Departments, Cities Using Parking Meters.* Write for details and fee for your municipality.

Relieve Traffic Congestion

735. By constructing by-pass arteries, most cases of traffic congestion can not only be relieved but can be entirely eliminated. By constructing with Caterpillar diesel equipment, economy, speed, and efficiency are obtained. For details and specifications, write the Caterpillar Tractor Co., Peoria, Ill.

Centrifugal Sewage Pumps

736. Worthington Freflo pumps have been developed to meet the requirements of sewage pumping, with advanced hydraulic design to provide maximum life and minimum maintenance. Line drawing and specifications of the Freflo pump are contained in Bulletin W-317-B10. The may be obtained by writing to the Worthington Pump and Machinery Corp., Waterworks Div., Harrison, N. J.

House Numbering

737. Most officials recognize the necessity of having a planned house-numbering system, but whether such a plan exists in your municipality or not, it is important that house numbers be legible. For information about Premax Products, Div. of Chisholm-Ryder Co., Inc., 3838 Highland Ave., Niagara Falls, N. Y., write the company; you will be sent complete information on types available and prices.

Protect Water Tanks Against Rust

738. Rusta Restor, a division of The Johnston & Jennings Co., 861 Addison Rd., Cleveland 14, Ohio, will send you details on its cathodic method of providing rust-free tanks. This method eliminates interior painting.

Diesel Engines

739. The Superior diesel engines incorporate conservative ratings, efficient pressure lubrication, clean combustion, precision bearings, heavy crankshafts, and strong bases and cylinder blocks. Specifications may be obtained by writing to Superior Engines Div. of The National Supply Co., Springfield, Ohio.

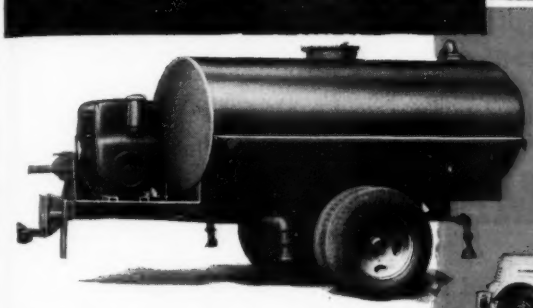
Water-Level Controls

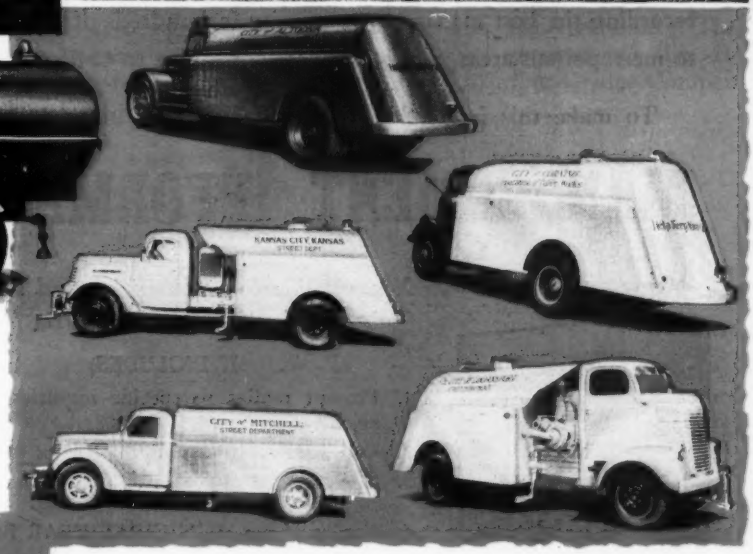
740. If you need information on equipment that controls elevated tanks, pressure tanks, float switches, alarms, pump controls, or any other device related to the elevation of water in tanks or wet-wells, write to the Healy-Ruff Co., Water Level Controls Div., 833 Hampden Ave., St. Paul 4, Minn.

Tailor the Water Meter To the Water Type

741. There is a reason for Buffalo Meter Co.'s suggestion that iron-case meters be used for measuring hard water, and bronze, for measuring soft water. For greater efficiency, choose the right type of meter. Information on the American and Niagara water meters may be obtained by writing to the Buffalo Meter Co., 2902 Main St., Buffalo 14, N. Y.

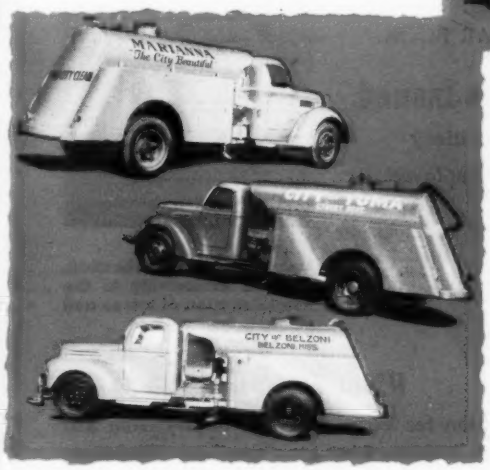
A FULLY MODERN HI-TENSILE STREET FLUSHER *Costs Your City* NO MORE





The Model **TF** Tractor Flusher shown above is a 1000 gallon capacity. It can be towed by any industrial 14 horse power tractor, or larger.

The TF is equipped with **250 GPM Pump,** and **15 horse power** air-cooled engine (Also available for hook-up to power take-off on tractor.) This flusher eliminates the necessity for an investment in a truck.



The **Model 7** Street Flusher is available in 1100, 1500, and 2000-gallon capacities. Equipped with Continental 209 cubic inch displacement engine, and 650 GPM Pump. Three flusher nozzles standard. **Fully STREAMLINED** design.

Standard Steel Works **Model 7** Street Flusher is constructed of **Hi-tensile** steel throughout thus reducing **corrosion 4 to 6 times, 15%** to **20%** saved on **dead weight,** and **tensile strength** is increased **20% per square inch.**

Fully Streamlined Flusher is furnished at no additional cost, and civic pride is enhanced through the use of modern up-to-date flushing equipment.

Longitudinal sills distributes the tank weight along the entire truck chassis, increasing strength, and **lowering center** of **gravity. Less wear** and **tear** on truck chassis—**better load distribution.**

Low cost maintenance—with centrifugal pump tied directly to power unit, a minimum number of parts to maintain and to keep in repair—unnecessary to have stand by Repair and Maintenance Department.

Large Continental 209 cubic inch displacement engine powers 650 GPM Pump at only 1570 RPM.

Pump provides better than 50-lb. cleaning pressure with 3 Flusher Nozzles open.

OTHER PRODUCTS:
ASPHALT DISTRIBUTORS • TAR KETTLES • MAINTENANCE DISTRIBUTORS • BURNERS STREET FLUSHERS • SPRAY UNITS • SUPPLY TANKS SURFACE HEATERS • SHOULDER ROLLERS . . . and Agricultural Equipment.

Built to **Standard** *the Highest*

Standard Steel Works NORTH KANSAS CITY, MO., U.S.A.

Mr. Mayor or City Manager:

DON'T GUESS—BE SURE

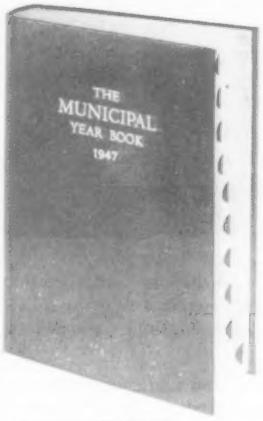
Profit from the Mistakes of Other Cities

For 30 years, The International City Managers' Association has been studying, analyzing and recording the best management practice in hundreds of cities varying in size from small towns to metropolitan areas, and scattered from Maine to California.

To make this invaluable experience available to YOU, the Association has established

MANAGEMENT INFORMATION SERVICE

Municipal Year Book



Approx. 570 Pages

Resumé of activities and statistical data of over 2,000 cities published since 1934.

Now Available to All Cities and Towns on a Subscription Basis

IT INCLUDES:

1. Prompt replies to specific inquiries on management problems.
2. Copies of replies to inquiries from other cities.
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Making Pay Adjustments for City Employees.
Trends in Municipal Revenues.
Factors in Reducing Work Week for Firemen.
Municipal Regulation of Taxicabs.
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Cities Using Parking Meters.

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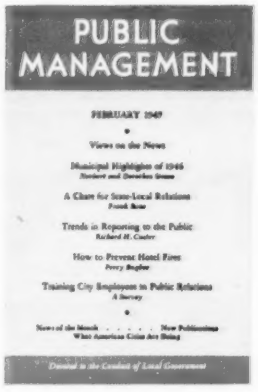


29th year of publication, devoted exclusively to the administration of towns and cities.

How It Works

A city has a management problem—needs technical advice—contacts MIS—receives prompt reply—city thereby aided in reaching best solution.

What It Costs

Subscription fee varies with size of city from $20 for under 5,000 to $400 for cities from 250,000 to 500,000 population. Over 500,000—on application.

MIS is now serving 235 municipalities ranging in size from 1,000 to 400,000. For more details and fee for your city write:

The International City Managers' Association

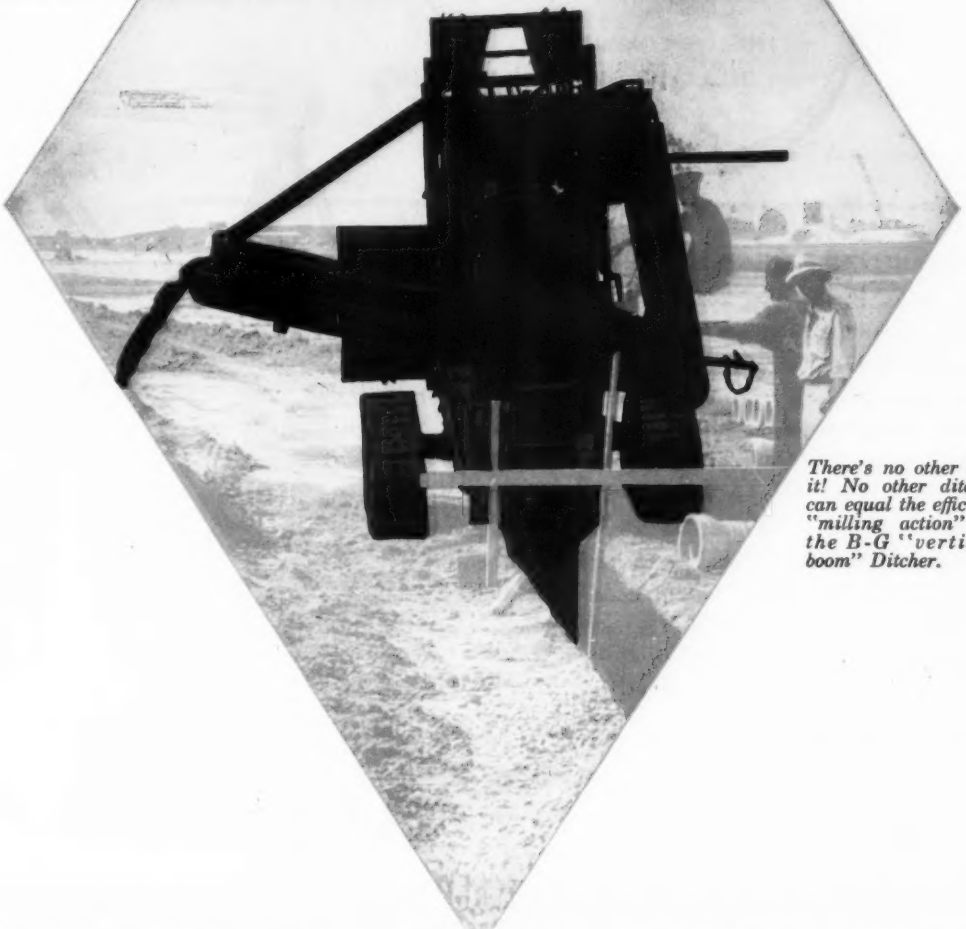
1313 East 60th Street **Chicago 37, Ill.**

Barber-Greene

The Ditcher that Conquered CORAL ROCK!

Tough abrasive coral rock wasn't considered a good spot for a mechanical ditcher until the B-G Vertical Boom Ditcher first showed how the job could be done. Since that time, miles of trench have been cut in coral rock by B-G Ditchers, from the Florida flat lands to the Pacific's war-won islands. Naturally, with that kind of ability it is the preferred, moderate width, medium depth ditcher for working in everything from cemented gravel to sticky gumbo.

Like all B-G machines, it is engineered by experts to give long-time, cost-reducing service: the self-cleaning "kick-out" digging buckets on the vertical boom operate like a milling machine for sure cutting action: the automatic overload release gives positive protection, automatically resets itself: its short length, low over-all height and sure-footed crawlers give it maximum maneuverability. These are unique features that recommend this B-G Ditcher for tough going. Barber-Greene Company, Aurora, Illinois.

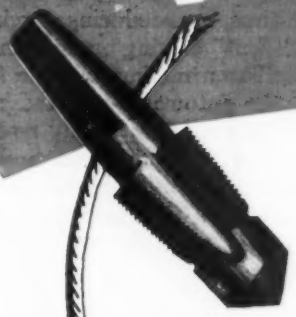


There's no other like it! No other ditcher can equal the efficient "milling action" of the B-G "vertical boom" Ditcher.

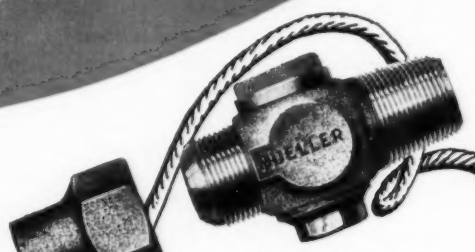
BARBER-GREENE COMPANY • AURORA, ILLINOIS

Constant Flow Equipment

The MUELLER THREAD

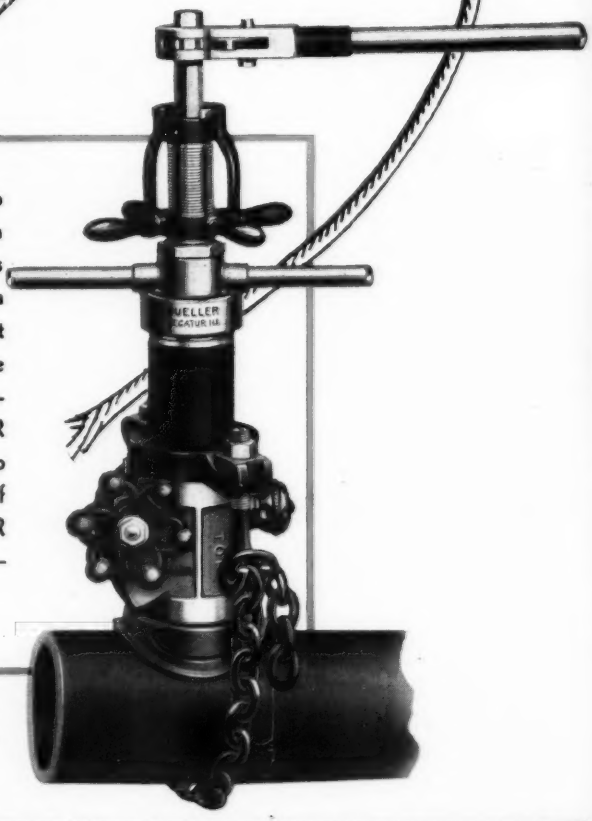


MUELLER COMBINED
DRILL AND TAP



MUELLER H-15000
CORPORATION STOP

The MUELLER THREAD is sometimes referred to as the CC (Corporation Cock) or CS (Corporation Stop) thread because it has long been recognized as the ideal thread for Corporation Stops. It has a steeper taper that gives heavier wall thicknesses next to the body and they run up easily and tightly in the main to give a leak-proof fit. The Mueller Combined Drill and Tap for use with the MUELLER Drilling and Tapping Machine cuts deep, sharp threads in the main that assure accurate alignment of the Stop to the Main. Depend upon MUELLER THREADS when you insert Corporation Stops—over 95% of all Waterworks do.



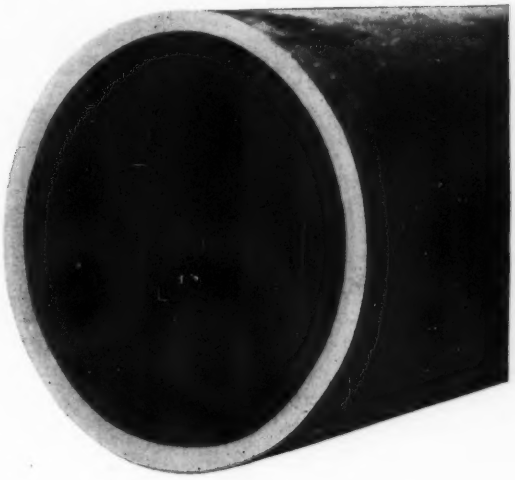
MUELLER TAPPING AND
DRILLING MACHINE "B"

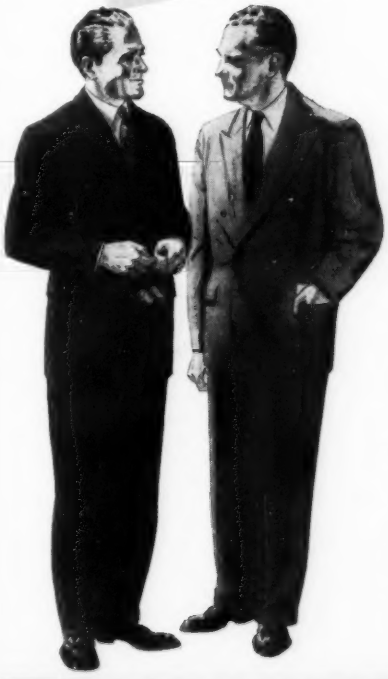
MUELLER CO.

MAIN OFFICE AND FACTORY ..... DECATUR, ILLINOIS
OTHER FACTORIES: *Los Angeles, Cal.; Chattanooga, Tenn.; Sarnia, Ont. Canada*

PITTSBURGH-ERIC PROCESS
Restores Water Main Efficiency

SMALL MAINS
3" to 24"
CAN NOW BE
RECONDITIONED
ECONOMICALLY





Assures Clean, Abundant Water—
Adds Years to Life of Mains—

A Pittsburgh-Eric Pipe Reconditioning Program brings an end to many costly pipe maintenance problems in your community. Lines are first cleaned and restored to utmost capacity by modern, efficient pipe cleaning methods. A coating of bitumen is then applied by the ingenious Pittsburgh-Eric Process to the pipe interior. This coating has a high resistance to the attack of corrosive waters, protects the pipe from further deterioration, and reduces discoloration, tuberculation and incrustation to a minimum. Because of the Eric method of application, small mains can now be lined economically, and "in situ," thus restoring them to many years of additional service at a fraction of the cost of replacement. Ask our nearest branch to show you how a Pittsburgh-Eric Pipe Reconditioning Program can save money for your community.

PITTSBURGH PIPE CLEANER COMPANY

133 Dahlem St., Pittsburgh 6, Pa.

PHILADELPHIA · BALTIMORE · WASHINGTON · NEW YORK · BUFFALO · CHICAGO · CINCINNATI · ST. LOUIS · DETROIT · BOSTON

4 Modern Tools to Cut

END DISCHARGE SAVES PATCHING TIME with KWIK-MIX BITUMINOUS MIXER

Kwik-Mix Bituminous Mixers materially reduce patching time, because they combine two important time-saving features: (1) End Discharge, (2) Non-Tilting Discharge. End discharge makes possible direct pouring of mix into break. No wheelbarrow is needed. Because of end discharge, mixer never is pulled through new patch. Non-tilting feature speeds discharge every batch. Full drum is emptied in seven seconds through big discharge door. Door easily opened with one hand. Back-breaking tilting is eliminated. Operator fatigue near end of shift and resulting production loss is eliminated.

KWIK-MIX COMPANY PORT WASHINGTON, WISCONSIN

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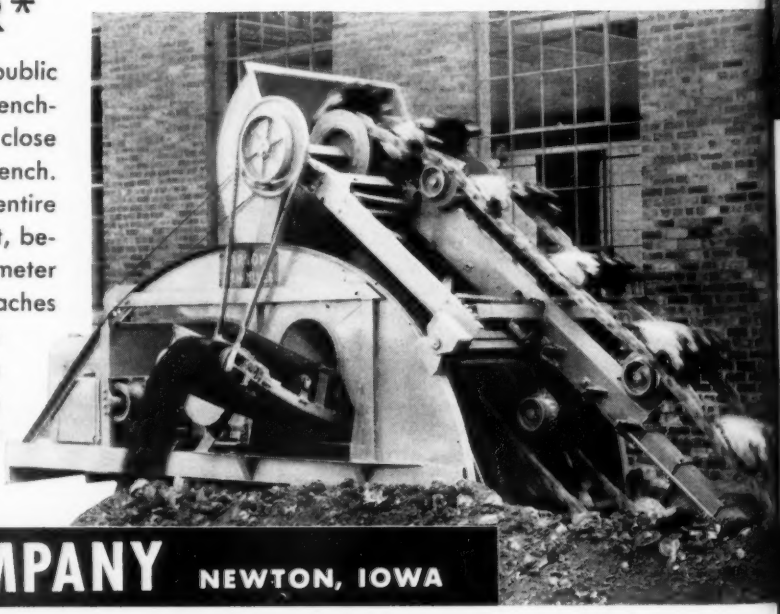
The new Parsons 221 Trenchliner, public service model in the Parsons line of trenchers, sidesteps surface obstructions as close as 10" to either side of the projected trench. Boom shifts from side to side across entire width of boom carriage. Easy to shift, because it rides smoothly on big diameter rollers. Arc type spoil conveyor reaches up 6' 9", easily dumps into 1½-ton trucks. Telescoping ladder type boom can dig over and under obstructing pipes in trench, virtually eliminating hand work.

*T/M REG. U. S. PAT. OFF.



PARSONS COMPANY NEWTON, IOWA

YOUR Maintenance Costs

Preventive maintenance with KOEHRING MUD-JACK pays BIG DIVIDENDS

T/M REG. U. S. PAT. OFF.

Koehring Mud-Jack reduces maintenance costs on concrete street slabs, sidewalks, curbs and gutters. Sunken slabs, sidewalks, curbs and gutters can economically be raised to grade before weakened subgrade conditions can cause damage. Through small holes drilled into depressed slab Mud-Jack pumps inexpensive cement-sand slurry to replace firm foundation beneath concrete. Cost of Mud-Jack maintenance is but a fraction of replacement cost. Koehring No. 10 Mud-Jacks and Koehring No. 50 Mud-Jacks are used by cities, towns and counties throughout the U. S.

HEAVY-DUTY *Handyman*

In the Koehring 205, the new Heavy-Duty Half Yard, exceptionally heavy construction for a machine of its size is combined with all the half yard features that make this model ideal for city yard and maintenance work. Independent traction and fast swing step up output when 205 works as crane or clamshell, handling aggregates, pipe, lumber. Chain-driven double cable crowd gets extra power to dipper when 205 is used as shovel. Completely and easily convertible. Available on crawlers or on truck chassis as a one-man operated Cruiser Crane.

KOEHRING COMPANY MILWAUKEE 10, WISCONSIN

KOEHRING PRODUCT

782

A "Bull's Eye" every time

A/H LEAK LOCATOR

When hunting leaks, you need not be an expert marksman if you use the A/H Leak Locator. Just place it in contact with the earth, put on the ear-phones, and the A/H Locator will lead you to that underground leak in a jiffy. No hit-and-miss excavating, no unnecessary resurfacing of the street. Price complete with carrying case and strap: $75.00.

pipe locators	dipping needles	pipe phones
$100.00	$17.50	$3.70

Write for circular AC-5

ALLEN - HOWE ELECTRONICS CORP.

150 MAIN ST. PEABODY, MASS.

NO "LEAN YEARS" FOR WEEDS!

Order Your Supply of Weed-Killer *NOW*

DOLGE WEED-KILLER

Does a swift, efficient job where *no vegetation whatever* is desired. This Dolge-developed preparation kills weed tops, then penetrates to the roots, destroying the plants completely. It sterilizes the soil and prevents seeds from sprouting.

An hour's sprinkling with DOLGE WEED-KILLER equals six hours of weeding by old-fashioned, unsatisfactory methods. Do the job once and do it *right* at a terrific saving of money.

E. W. T. *SELECTIVE* WEED-KILLER

Acts on weeds but is not injurious to most grasses, nor does it sterilize most soils. One cupful to eight gallons of water is the usual solution for ridding turf areas of dandelions, plantains and other hardy weeds.

Non-poisonous to humans and domestic animals . . . will not corrode metal sprinkling and spraying equipment. Use freely on roadsides to control poison ivy. Use for ragweed control.

Write for complete literature, with full directions for applying these tested Dolge products.

The C. B. DOLGE CO. WESTPORT, CONNECTICUT

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STORAGE BATTERIES

FOR MUNICIPALITIES

HAND storage batteries are heavy-duty batteries provided with heavy, hand-pasted tank-formed plates, heavy glass mats, acid and heat resisting micro-porous rubber separators, splash decks and genuine hard rubber containers. Built for use in Police Radio cars, Sanitation trucks, snow plows, sweepers, emergency trucks, ambulances, and fire apparatus.

The Hand Laboratory, Nyack, N. Y.

FOR STOPPING LEAKS IN PIPE LINES...

Emergency Pipe Clamp—the universal repair clamp the world over, for nearly half a century! Easy to apply. Saves cost of new pipe—eliminates job of tearing out old and putting in new.

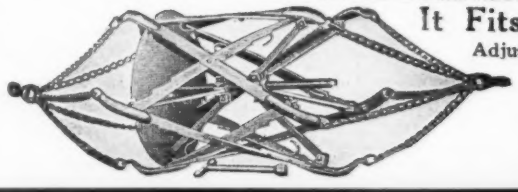
M. B. SKINNER CO.

SOUTH BEND 21, INDIANA

SKINNER-SEAL EMERGENCY PIPE CLAMPS

EXPANDING ROOT CUTTER & SEWER CLEANER

Open and in action removing roots and caked sediment like this.



It Fits in on Every Sewer Cleaning Job

Adjusted in 30 seconds to fit any sewer from 8 to 30 inches.

Will clean the entire sewer wall, top, and sides as well as the bottom, cutting and removing the roots and caked sediment, putting the sewer system in almost 100% clean condition.

Write for our new catalog on complete sewer cleaning equipment.

EXPANDING SEWER MACHINE COMPANY

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HEAVY-DUTY JOB?

Put it up to an FWD

THE TRUCK FOR *all* HEAVY WORK *all year 'round*

The powerful drive on all four wheels of FWD four-wheel-drive trucks, plus FWD truck engineering based on over 36 years of experience concentrated on four-wheel-drive, give these rugged, dependable trucks outstanding advantages in all phases of heavy-duty road construction and maintenance work.

With underbody blade, the FWD has no equal for road patrolling—blading, grading, maintaining—fast, at low cost. All year 'round, heavy material hauling, heavy equipment transport, snow clearing, heavy emergency road work . . . all are done faster, safer, at lower cost, with FWDs—the ONE truck for MANY jobs. For complete information, see your nearest FWD Distributor or write to . . .

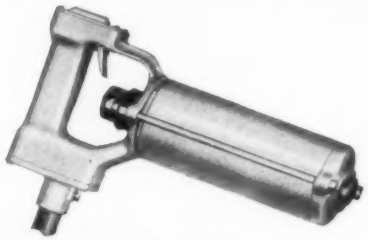
THE FOUR WHEEL DRIVE AUTO CO., CLINTONVILLE, WIS.

Canadian Factory: KITCHENER, ONTARIO

A 5-ton FWD Model SU patrolling rugged, winding Cameron Pass, Colorado. *At left:* An FWD Model HA, taking on a load of gravel . . . one of large South Dakota fleet used also for snow removal, as well as road construction and maintenance.

America's Foremost Heavy-Duty Truck

FWD



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DEPENDABLE

ELECTRIC HAMMERS

SAVE MONEY AND TIME

Drilling and Cutting Concrete and Masonry

Scaling Rust and Paint

Driving Nails

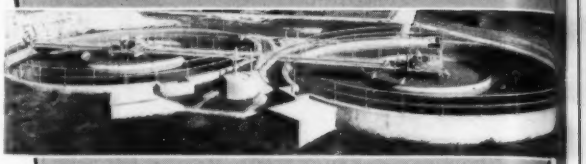
Removing Mortar for Waterproofing

Write for illustrated folder.

SYNTRON CO.

430 LEXINGTON, HOMER CITY, PA.

ACCELATOR



THE

MODERN WATER TREATING PLANT

OVER 600 SUCCESSFUL INSTALLATION

The ACCELATOR is new enough to be exclusively different in design, yet ... enough to be thoroughly proved in performance.

It is the result of more than a half a century of intensive research and develo... ment by Infilco water conditioning specialists.

The ACCELATOR combines in one compact tank the former separate steps ... quick mixing, coagulating, settling, and sludge removal.

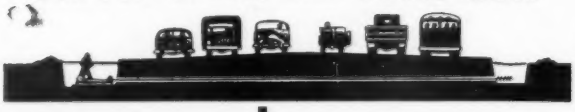
Raw water and chemicals are intermingled with a constantly circulating wa... coagulated slurry, and chemical reaction takes place almost instantly on t... surface of old particles. Clear treated water rises at a high rate from the surfa... of the circulating slurry pool.

Write for Bulletin 1824. INFILCO Inc., 325 W. 25th Place, Chicago 16, Illino...

IF YOU WANT TO KNOW — ASK INFILCO

PRICELESS! . . .

200 Feet of 14½ Dia. BORED HOLE



Fast 5 Horsepower

MODEL 10-A

newest and largest

HYDRAUGER

Frequently a HYDRAUGER saves its entire cost on a single job; but what is still more important, most of the hundreds of HYDRAUGERS now in use have paid for themselves within a year on just ordinary day-to-day pipe installation jobs . . . there's *always something* for a HYDRAUGER to do—ORDER YOURS SOON!

Bores 2½". Reams to 4½", 6½", 8½", 10½", 12½", 14½".

OPERATES ON 90 LBS. AIR PRESSURE

Write for CATALOG TODAY

HYDRAUGER*

*Reg. U. S. Pat. Off.

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HYDRAUGER CORPORATION, LTD.

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WORTHINGTON-GAMON

LIQUID METERS

All Sizes All Types

Worthington-Gamon Meter Co.

Subsidiary

WORTHINGTON PUMP & MACHINERY CORP.

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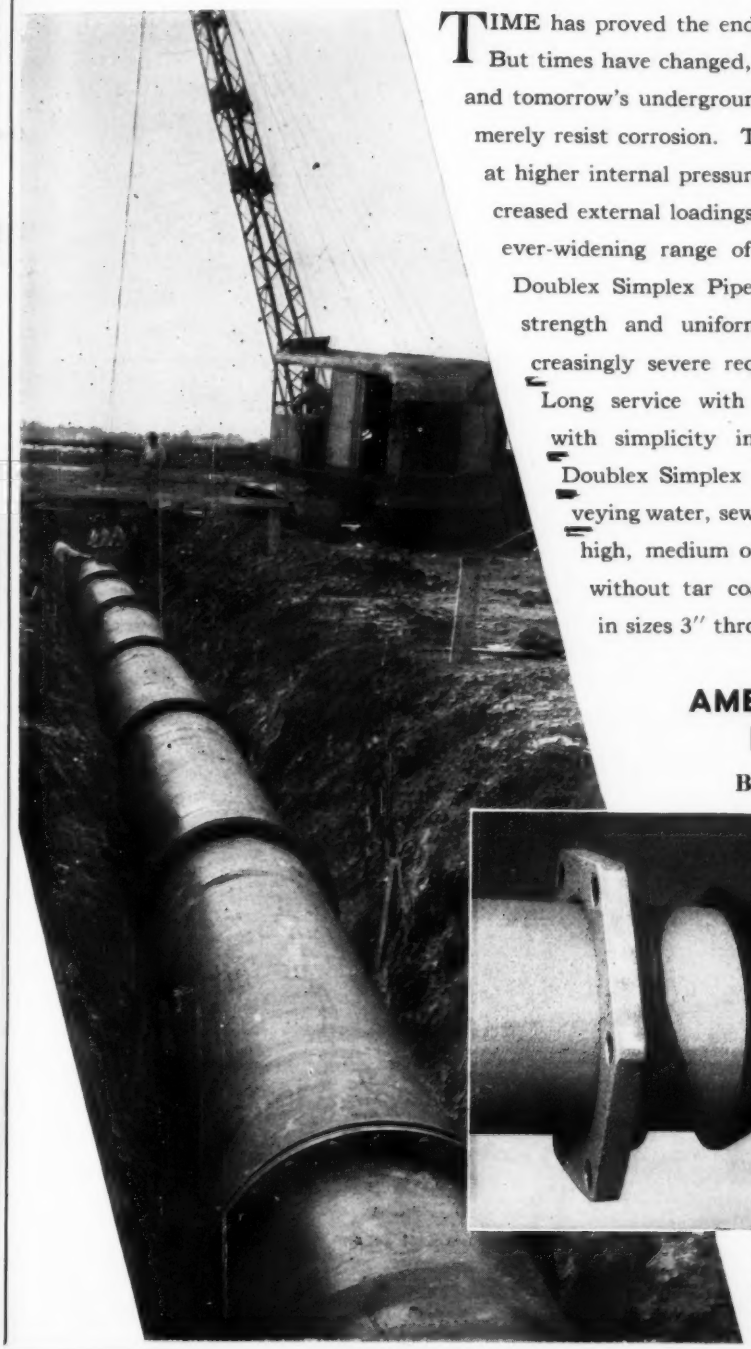
For Quick Laying, Superior Quality, and Tight Joints

Specify Doublex Simplex Pipe

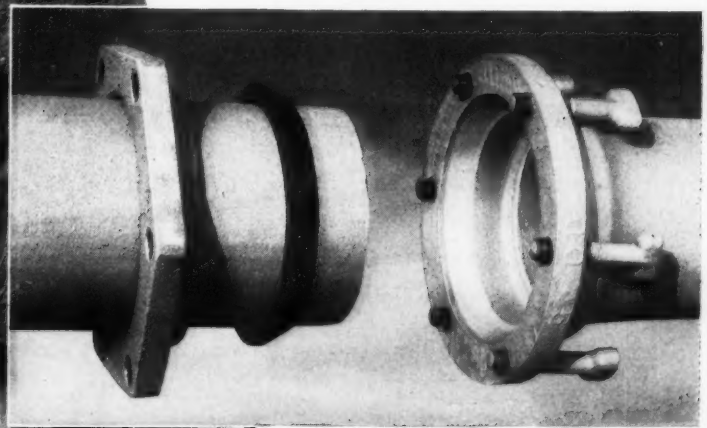


TIME has proved the enduring qualities of Cast Iron Pipe. But times have changed, are still swiftly changing. Today's and tomorrow's underground mains must do much more than merely resist corrosion. They must convey greater volumes, at higher internal pressures; they must withstand vastly increased external loadings; and they must be adapted to an ever-widening range of service conditions. Mono-Cast Doublex Simplex Pipe possess the exceptional physical strength and uniformity necessary to meet the increasingly severe requirements of modern usage.

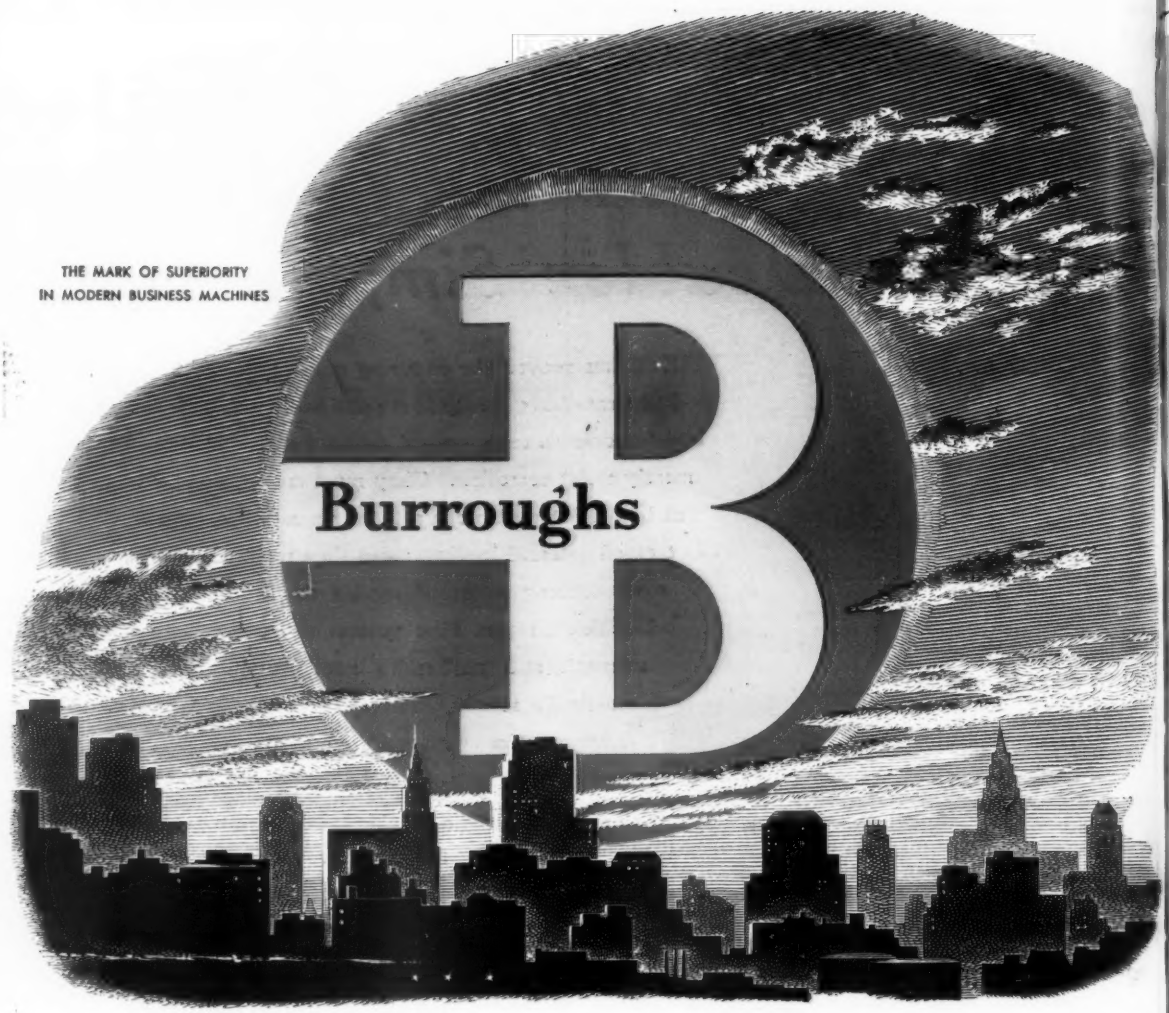
Long service with minimum maintenance, coupled with simplicity in installation, make Mono-Cast Doublex Simplex Pipe a favorite for systems conveying water, sewage, gas, oil or other liquids under high, medium or low pressures. Supplied with or without tar coating, cement or Enameline lining in sizes 3″ through 48″.

AMERICAN CAST IRON PIPE COMPANY

Birmingham 2, Alabama



The Doublex Simplex joint allows for liberal deflection and longitudinal expansion and contraction in the line without danger of leakage.



THERE'S A NEW DAY DAWNING IN BUSINESS MACHINES AND METHODS

Business looks to Burroughs for fast, accurate machines to combat rising costs, reduce office expenses, provide more immediate information on which to base sound judgment. Business knows that Burroughs is a single source for all the factors of mechanized efficiency: machines that do work in less time, counsel that applies them most effectively to the job, service that maintains them at peak condition. To fulfill its increasing responsibility, Burroughs has stepped up the tempo of research and product development to a new all-time high. What's going on at Burroughs today will certainly serve business better tomorrow.

WHEREVER THERE'S BUSINESS THERE'S

Burroughs

Underscore these 14 time-saving advantages of the

AMERICAN TOWER LIFT

For more than thirty years The American Coach & Body Company has been the largest manufacturer of utility equipment in the automotive field. Now, with the patented American Tower Lift — newest addition to the ACB family — American offers the latest in tower lift equipment for all overhead maintenance and installation work. *Note these time-saving, money-saving features:*

1. Low initial height — in some instances, almost flush fittings
2. Locking platform guard rails can be folded when not in use
3. Extreme elevations, up to 28 feet
4. Rigid stability, even at top elevations
5. Raising and lowering action controlled by operator from tower lift platform
6. Smooth, constant speed in raising and lowering of platform
7. Each unit is complete with power take-off and hydraulic equipment
8. Platforms fully insulated for added protection
9. Special flooring assures safe, slip-proof footing
10. Several platforms to choose from — Fixed, Rolling-type, Swivel-type
11. Two tower types available — Light Duty or Heavy Duty
12. Sturdy construction without excess bulk
13. Requires minimum of body space and provides complete vision to rear between uprights
14. Can be installed on dual wheeled trucks having as low as 1 ton capacity or can be purchased independently of the truck unit and installed on your present chassis

Our Engineering Department will be glad to show you why the American Tower Lift is tops for heavy line work, street lighting, signal maintenance, and tree trimming. **Write today for specific information based on your requirements.**

A new bulletin just off the press shows how you can use the American Tower Lift profitably. Your copy will be mailed promptly upon request.

ACB and

THE *American* COACH and BODY COMPANY

9503 WOODLAND AVE., CLEVELAND 4, OHIO

SALES and ASSEMBLY OFFICES

Can you think

There's a fortune in it if you can.

But remember, we mean pipe material that will serve a century. Everybody knows that cast iron pipe will because it has served for more than a century in American cities, and for more than two centuries in Europe.

Can you think of any other kind that will? Under the ground and under pressure? At practicable cost? No one else has been able to.

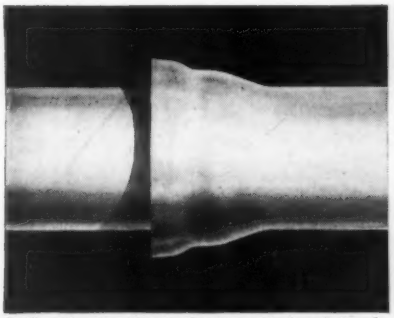
But, you may say, in this Atomic Age why should I buy pipe that lasts so long? Because the same qualities that enable cast iron pipe to serve for centuries also mean economy "in our time." Lower annual maintenance cost from the start. Lowest cost per service year in the end.

A survey among 195 water works superintendents proves that the maintenance cost of cast iron pipe for distribution mains is lowest by far.

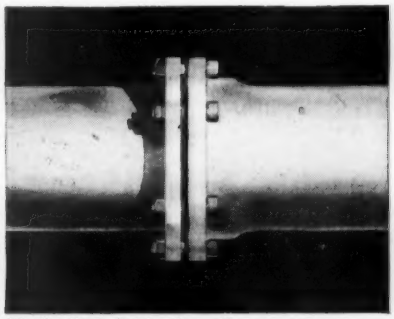
Engineers, in evaluating bids, continue to give cast iron pipe the highest rating for useful life — 100 years or more.

A U. S. Government Report On Obsolescence gives cast iron pipe the lowest rate of depreciation of all engineering materials.

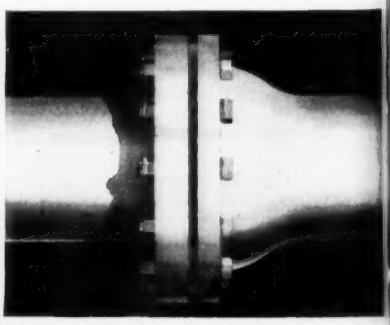
Yes, you can lay cast iron pipe with confidence, underground or under water. Because of its all-purpose adaptability, cast iron pipe is available with joints for every service as shown below. Cast Iron Pipe Research Association, T. F. Wolfe, Research Engineer, Peoples Gas Bldg., Chicago 3.



Bell-and-spigot Joint—the time-tried and standard for water, gas and sewerage service.



Mechanical Joint—for all pressures—now standardized with interchangeable parts.



Flexible Joint—for river crossings and other sub-aqueous installations.

CAST IRON PIPE

f any other pressure pipe material, practicable for nderground mains, that will serve for a century?

Flanged Joint—for water, steam, oil or gas lines, generally used above ground.

Serves for Centuries

NEXT.!
Daily Journal
TRAIN LIGHTS BLAMED IN BUS CRASH; 5 DEAD
Eight Passengers Hurt in Crossing Collision
Crossing Death Stirs Protest
TRAIN STRIKES TRUCK; DRIVER DIES; 4 HURT
KILLED BY TRAIN
RAIL ROAD CROSSING
STOP ON RED SIGNAL

REMEMBER, IT COULD HAPPEN AT ONE OF YOUR UNPROTECTED CROSSINGS

*BUT IT WON'T HAPPEN HERE

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2,137,196
2,362,710
2,372,579
Patented in Canada 6-27-39
Other Patents Pending

Model 10 HIGHWAY CROSSING SIGNALS THE MODERN WAY

10 *Years* OF RECORD-BREAKING LIFE-SAVING PERFORMANCE AT CROSSINGS PROTECTED BY...

. . . prompts us to forecast the future—"it won't happen here." We say it with confidence . . . because thousands of Model 10 Signals are providing unfailing grade-crossing vigilance . . . around the world. 78 railroads, in the United States and in foreign countries, depend on WRRS Model 10 Signals for *automatic, positive* grade-crossing protection. Even the dreaded "second train" hazard is virtually eliminated with Model 10's on guard. Model 10 Signals will solve your safety problem *immediately, permanently* —for about one-tenth of the average cost of grade separation.

Write for Bulletin G-156-AC

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Designer and Manufacturer of Safety Devices for Railroads

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"GUNITE"

for another

Reservoir Repair!

The water storage reservoir illustrated here was deteriorating rapidly and serious leakage developed. Our engineers were consulted and a "GUNITE" (sand and cement applied pneumatically) lining was recommended.

All disintegrated concrete was chipped out and these areas restored. Then a 2" reinforced "GUNITE" lining was installed on the sides and bottom of the reservoir. The reinforcing was anchored securely to all surfaces before lining work started.

This repair, done by men who know their business, resulted in a completely reconditioned reservoir with many years of added service life, at a fraction of the cost of a new structure.

"GUNITE" is the practical, proven method for restoring reservoirs, dams, bridges, filter plants, tanks, etc. Write for our recommendations on how "GUNITE" can solve your concrete maintenance problems. An attractive bulletin is awaiting your request.

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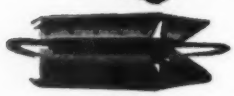
NEWARK, N. J.

PRESSURE CONCRETE COMPANY
ENGINEERS AND CONSTRUCTORS

SOUTH COURT ST.
FLORENCE, ALABAMA

KEEP SEWERS OPEN with OK CHAMPION POWER SEWER CLEANER



OPEN

CLOSED

Pulling forward opens the jaws that bite into obstructions. Reversing the pull on the bucket automatically closes jaws which hold load pulled back to street level. Write for complete details.

Town and City officials throughout America are adopting OK CHAMPION Power Sewer Cleaner to keep sewers clean and efficient. Takes roots, dirt, sand, and other debris up from main in one continuous operation. All men work above street level.

CHAMPION CORPORATION 4716 SHEFFIELD HAMMOND, IND.

Cast Iron Pipe

PLAIN CAST OR SPUN CENTRIFUGAL

Cast Iron Pipe and Special Castings, Bell and Spigot, Flange, Flexible Joint, Culvert, Milled and Plain End Tubes, Cylinders, Flanged and Bell and Spigot Fittings, High Pressure Fire Service Pipe, Warren Short Body Specials, Threaded End Pipe.

Size 2 to 84-inch

Pipe manufactured in accordance with standard specifications adopted and approved by water works associations and engineers.

Warren Foundry & Pipe Corp.
11 Broadway, New York City

Warren Pipe Co. of Massachusetts
75 Federal Street, Boston, Mass.

on city street or mountain pass complete water-cooling Pays YOU

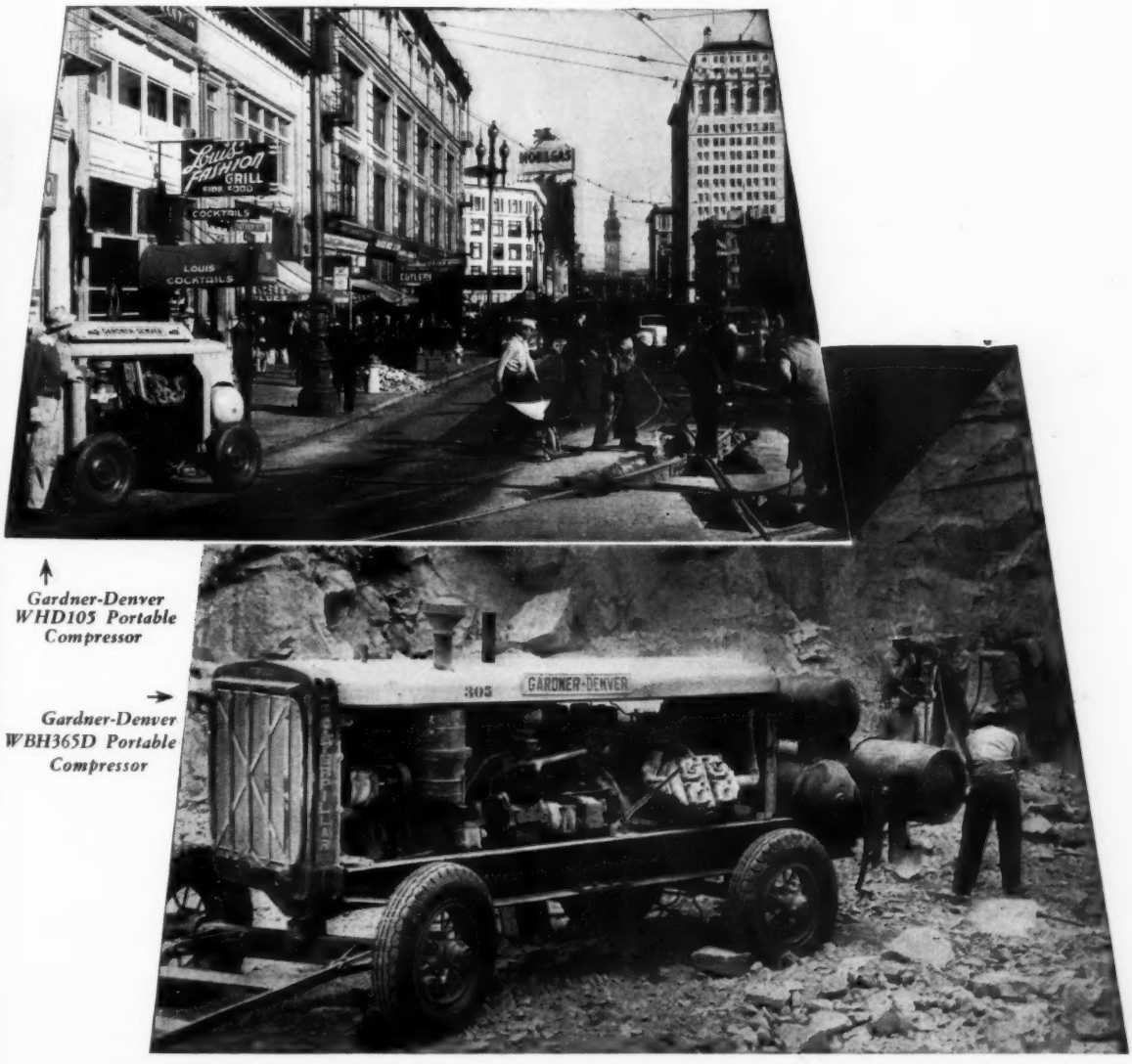
Whatever the size of your job . . . whatever its location . . . a Gardner-Denver Portable Air Compressor gives you the confidence of a steady, uninterrupted air supply. Complete water jacketing of all cylinders protects you from overheating in the 130° heat of desert or jungle — and from cold "unlubricated" starts in the sub-zero temperatures of the Arctic. And at any altitude, these two-stage water-cooled air compressors retain their high efficiency — deliver full output continuously without high discharge temperatures so destructive to air hose and so conducive to excessive oil consumption.

For complete information about Gardner-Denver Portable Air Compressors, write Gardner-Denver Company, Quincy, Illinois.

USE COMPRESSED AIR FOR SAFETY CONVENIENCE FLEXIBILITY

GARDNER-DENVER

SINCE 1859



Gardner-Denver WHD105 Portable Compressor

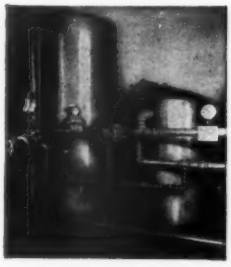
Gardner-Denver WBH365D Portable Compressor

I Could KISS the Mayor!

"And hundreds of other housewives could kiss him too! And why not? Members of this administration were on their toes when they brought municipal soft water to our town. They knew that soft water is the delight of everyone — from baby to grandpa.

"What's more, *and this is important*, our city water department is now on a 'paying basis.' I don't mind paying a few cents more for *soft* water because it saves many times its cost by reducing soap requirements, saving fabrics and eliminating damaging scale in plumbing.

"So, you see, we have the benefits of soft, iron-free water *in every home* — and the municipal equipment pays for itself. Pretty smart city government, Eh?"



Yes—consider the advantages of soft water for your community. Get *all the facts* today by writing, wiring, or phoning — no obligation of course.

NEED SWIMMING POOL EQUIPMENT?

Remember—Refinite supplies equipment for swimming pools, as well as laboratory analysis and swimming pool control services. Ask for free literature.

The Refinite Corporation

Refinite Building Omaha, Nebraska

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AS NATIONALLY APPROVED APPLICATORS OF SUCH MATERIALS AS ***NO-OX-ID, BARRETT*** AND OTHER COATINGS WE COMBINE CRAFTSMANSHIP AND PRODUCT TO INSURE MAXIMUM PROTECTION ON—

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FOR JOINTING CAST-IRON WATER MAINS

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Saves at Least 75%

Leadite is shipped in powder form, packed in sacks of 100 lbs. net each. Leadite tested and used for over 50 years ● Leadite joints improve with age.

Be sure it is Leadite and accept no imitations

THE LEADITE COMPANY
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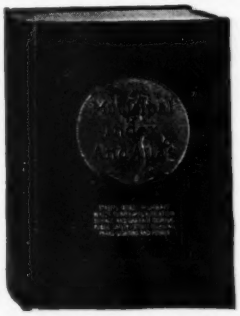
No Caulking

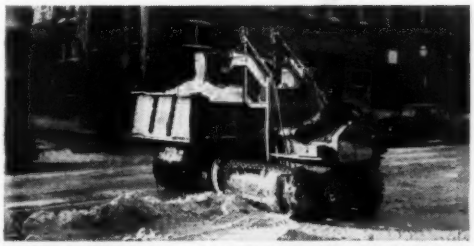


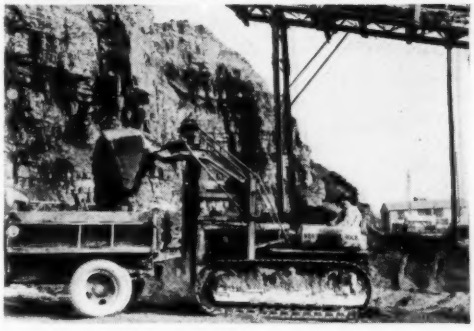
"WHO'S WHO IN MUNICIPAL SUPPLY"

is an important feature of the THE MUNICIPAL INDEX consisting of brief messages to municipal officials from all the manufacturers, who are sufficently interested in governmental business to contribute a functional statement about what their products can do for city officials. If you do not have the latest Municipal Index on hand please let us know.

THE MUNICIPAL INDEX
470 Fourth Avenue New York 16, N. Y.

When there's WORK to do · · TRAXCAVATE!

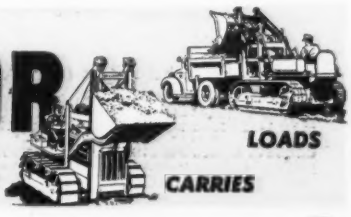




Work is the word for TRAXCAVATORS! These multi-purpose machines have a great way of making tax dollars do double duty — because TRAXCAVATORS work the year around on a wide variety of tasks. Some samples of TRAXCAVATORS' versatility are pictured here: — a Model T4 digging and loading on a street widening project; a T2 loading snow; another T4 loading gravel, also used by the city to dig and load stumps, lay pipe, clean ditches, load windrows of dirt from streets. These are only a few of the many ways cities are tax-saving with TRAXCAVATORS. Your TRACKSON-"Caterpillar" dealer can show you how it pays to *Traxcavate* and why TRAXCAVATORS do more work on more jobs at lower cost. He can help you select the size best suited to your particular needs. See him today, or write direct to TRACKSON COMPANY, Dept. AC-57, Milwaukee 1, Wisconsin.

DIGS
GRADES

TRAXCAVATOR
REG. U. S. PAT. OFF.
THE ORIGINAL TRACTOR EXCAVATOR



LOADS
CARRIES

Johns-Manville answers

13 QUESTIONS

frequently asked

about TRANSITE* PRESSURE PIPE

*Transite is a registered Johns-Manville trade mark

1. What is Transite Pipe's flow coefficient?

The conservative "C" value for Transite Pressure Pipe is 140, based on the Williams and Hazen formula.

2. Is Transite Pipe subject to tuberculation?

No! Transite's asbestos-cement composition is assurance that its original high carrying capacity cannot be reduced by tuberculation.

3. What economic advantages result from Transite's immunity to tuberculation?

Transite's complete freedom from tuberculation provides substantial savings in the initial cost of the system as well as in maintenance and operating costs.

It means, first, that you don't have to resort to larger-than-necessary pipe to offset the progressive reduction of carrying capacity caused by tuberculation. Without "over-designing," you can specify minimum size pipe to do the job intended—providing flow for present needs and those incident to increasing population and industrial growth.

It means also that the pipe you install *now* won't have to be cleaned, lined, reinforced with additional mains, or replaced altogether because tuberculation has clogged its interior and reduced its original carrying capacity.

4. How about pumping costs?

Here again, Transite's non-tuberculating asbestos-cement structure pays off. In a Transite line it is not necessary to increase pumping pressures to compensate for the effects of tuberculation. Thus, pumps can operate at higher efficiencies—an economy which is helping to keep down water rates for the taxpayer in many communities served by Transite water lines.

5. Does Transite withstand corrosive soils?

In just about every type of soil, Transite has demonstrated its superior resistance to soil corrosion. This statement has been substantiated by impartial comparative studies conducted both by government and private agencies.

For example, one series of studies revealed that the corrosive effect of many types of aggressive soils on Transite Pipe was practically negligible after exposure over an extended period. Other pipe materials subjected to the same tests were substantially affected by corrosion, but the strength of the Transite Pipe actually increased under identical test conditions.

Another indication of Transite's unusual corrosion resistance is its performance in coal mine service. Here, the conveying of acid mine drainage waters is a severe test of the corrosion resistance of any pipe—so severe that the life of a drainage line is sometimes measured in terms of months or only weeks. Yet under these conditions some of the earliest coal mine installations of Transite Pipe, laid more than 12 years ago, are still in use today. Several of them have

outlived the mines in which they were originally installed and are now serving in new operations.

6. What about electrolysis?

Electrolysis is no problem in a Transite water line, for Transite, being non-metallic, is immune to electrolytic action. You can lay this pipe alongside street car or power lines or in the proximity of power stations, with complete confidence that it cannot be harmed by stray ground currents.

7. How about strength?

Three factors contribute to the high uniform strength of Transite Pipe:

1. Its tough, strong asbestos-cement composition (asbestos fibers have a tensile strength as high as 400,000 lbs. per square inch).
2. The method used to form the pipe during manufacture—it is built up under tremendous pressure into a dense, homogeneous structure.
3. The special curing process which follows the forming operation and develops maximum strength in the finished product.

And, Transite's resistance to virtually all types of soil corrosion is assurance that the strength which is built into this pipe at the factory *is built in to stay!* Its record of successful performance under adverse conditions is proof that Transite *maintains* its strength.

8. Does Transite Pressure Pipe provide tight joints?

Yes. Due to the Simplex Coupling, joint troubles in Transite lines are few and far between.

The design of the Simplex Coupling is simplicity itself. Consisting only of a Transite sleeve and two rubber rings, it is, in effect, a factory-made joint which is merely *assembled* on the job. The operation requires only that the sleeve be pulled over the ends of the pipe, which rolls and compresses the rubber rings into place between sleeve and pipe. Thus rubber, which provides one of the most effective of seals, safeguards the tightness of the line. Furthermore, each joint is readily checked for proper assembly as the pipe is laid, providing advance assurance that the line will pass leakage tests.

And because it is a *flexible* joint, the Simplex Coupling offers an important additional advantage after the pipe is in service. Its flexibility helps compensate for soil movement and other stresses to which the pipe may be subjected, thereby helping protect against joint leakage. This also provides a safeguard against washing away of the supporting soil and possible pipe breakage.

9. How much deflection is possible at the joints?

A deflection of 5° or more at each joint is possible on most installations of Transite Pressure Pipe—an important advantage when laying pipe around curves and in hilly terrain.

10. What installation economies does Transite provide?

It is an exceptionally economical pipe to handle and install. The lightweight sections make the use of mechanical handling equipment unnecessary except for the largest sizes. The Simplex Coupling employed assures a fast assembly job in the trench. Under most conditions, the pipe can be laid as fast as the trenching machine can do its work. In fact, because of this feature, many installations have been made with the same foreman supervising both excavation and pipe laying. And because of its rapid assembly, pipe installation jobs are completed sooner, minimizing street tie-ups and traffic annoyances.

11. Are service connections easily made?

Yes. Transite Pipe can be drilled and tapped with standard tapping tools and methods. Connections are strong and watertight. Connections to valves and fittings, cut-ins for valve insertions and branch take-offs, etc., are made by conventional methods.

12. In what diameters is Transite Pressure Pipe made?

Designed for both supply and distribution lines, Transite is made in diameters ranging from 3″ up to 36″.

13. What working pressures will Transite handle?

Four classes are made—for working pressures of 50, 100, 150 and 200 pounds per square inch. To assure an ample factor of safety, each length of pipe and each coupling is factory tested before shipment at four times its specified working pressure.

Have you any further questions?

If you would like additional information about Transite Pressure Pipe, send for brochure TR-11A. Or if you prefer, ask to have a Johns-Manville representative call. Address Johns-Manville, Box 290, New York 16, N. Y.

JOHNS-MANVILLE JM PRODUCTS

Johns-Manville TRANSITE PRESSURE PIPE

An Asbestos Product

AIR PLUS JAEGER COMPRESSOR

get air costs down to today's Jaeger figures

Your Jaeger distributor is today supply headquarters for contractors in your locality who are applying modern *low-cost* air power to their work. He handles the finest air tools, engines and compressors on the market — he knows air — he is an important link in a chain of 128 Jaeger air stations across the U. S. and Canada which give on-the-spot service to contractors wherever their jobs may be.

Why Jaeger Air COSTS LESS

75% to 100% larger "Tough Swedish Twin" valves, ultra-lapped to leakproof closure — 20% to 30% slower, cooler piston speed — 100% efficient intercooling — force feed lubrication — balanced, precision parts — mean smoother, vibrationless performance, free air flow without the usual heat, carbon and power-wasting back pressure — more air from every pound and dollar of fuel and much lower upkeep with compressor units that outlast their original engines* 3-to1.

*Caterpillar, Continental, International power.

Ask us for the name of your nearest air station and copy of Catalog JC-5, the up-to-date buyer's guide for portable compressors of 60 to 600 ft. size.

THE JAEGER MACHINE CO.

Main Office and Factory — Columbus 16, Ohio

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The "Quinn Standard"

FOR CONCRETE PIPE

The Quinn Standard is known as the best the world over, wherever concrete pipe is produced and used. Backed by over 30 years' service in the hands of hundreds of Quinn-educated contractors, municipal departments and pipe manufacturers who know from experience that **Quinn pipe forms and Quinn mixing formulas** combine to produce the finest concrete pipe at lowest cost.

Quinn Heavy Duty Pipe Forms

For making pipe by hand methods by either the wet or semi-dry processes. Built to give more years of service—sizes for any diameter pipe from 12 to 34 inches—tongue and groove or bell end pipe—any length.

WRITE TODAY

Complete information, prices and estimates sent on request. Also manufacturers of Quinn Concrete Pipe Machines.

QUINN WIRE & IRON WORKS 1623 12th ST. BOONE, IA.

Keep Informed—

For list of catalogs and literature on equipment for cities, towns and villages, and how to prolong its life turn to pages 19, 21, 23, 26, 28, and 30 of this issue of THE AMERICAN CITY.

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IT'S THE

HOLLENDEN

1000 ROOMS WITH BATH

RADIO IN EVERY ROOM

SIX FINE RESTAURANTS

CENTRAL DOWNTOWN LOCATION

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ROBERT P. JOYCE
General Manager

A new "FIGHTING FOUR"!

Now on the production lines are four new "Caterpillar" Diesel Tractors and Motor Graders—with decisively greater horsepower, strengthened design, and many mechanical refinements. . . . All brought to you in line with "Caterpillar's" policy of building ever better products for a steadily increasing number of satisfied users!

Without appreciable added weight, but with engines of increased piston displacement, still tougher materials, free-flow manifolding, larger crankshafts and numerous other improved features, these new "Caterpillar" Diesels enable you to *handle bigger loads—work at higher average speeds — accomplish more work per day — increase your earnings very substantially.*

These important advancements are the result of many months of quiet, patient but intensive "Caterpillar" engineering, metallurgical research, and factory tooling. They are dedicated to *your* future success and profits. You'll be delighted with the further details your "Caterpillar" dealer will gladly give to you.

CATERPILLAR TRACTOR CO. • PEORIA, ILLINOIS

GREATER HORSEPOWER

FASTER WORKING SPEEDS

MANY IMPROVEMENTS

HIGHER EARNING CAPACITY

THE NEW TRACTORS

The D6—65 drawbar horsepower
2600 pounds additional pull in first

The D4—43 drawbar horsepower
1600 pounds additional pull in first

BOTH—36% larger crankshaft journals • 30% larger crankpins • Solid aluminum alloy bearings • Chrome-plated top piston rings • Free-flow manifolding, with individual ports for each cylinder • More effective, single-unit air cleaner • Improved fuel-injection pumps and injection valves • Improved lubricating oil cooling radiator • More effective oil-pressure control • Full-machined cylinder liners, with "no-corrosion" seals

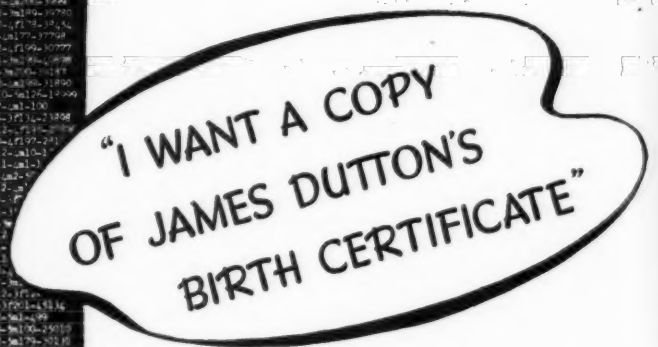
THE NEW MOTOR GRADERS

The No. 12—100 brake horsepower

The No. 112—70 brake horsepower

BOTH—Constant-mesh transmission • Helical gears—for less noise and easier shifting • Arched front axle—for more ground clearance • Steering shock absorber and anti-friction bearings • Improved power-control clutch, with anti-coasting brakes • Other engine refinements as in Tractor engines

CATERPILLAR REG. U. S. PAT. OFF. **DIESEL** ENGINES • TRACTORS MOTOR GRADERS EARTHMOVING EQUIPMENT



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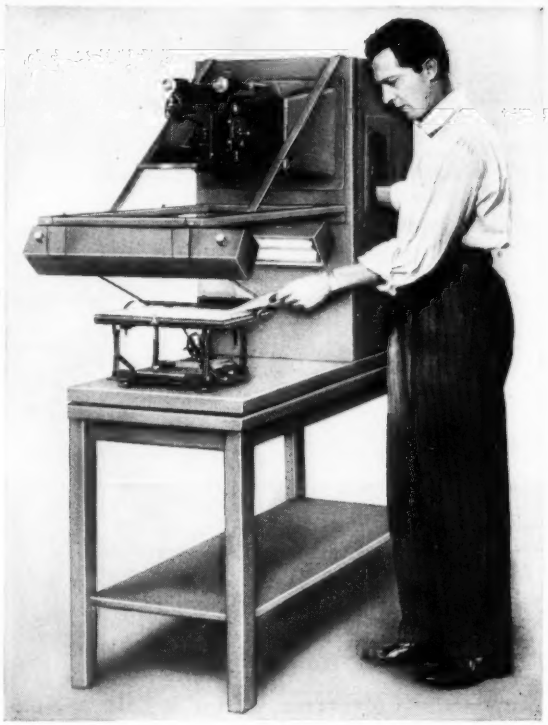
IN a matter of seconds, if your department has lightning-quick SOUNDEX-ed indexing and Dexigraph photocopying for Vital Statistics.

Yes, and you can save real money by re-using hard-to-get visible reference equipment *year after year.* You just "salt" photocopies away in binders each year, and set up the new index on the same Index Visible panels—Soundex-ed for fast finding of names under variant spellings.

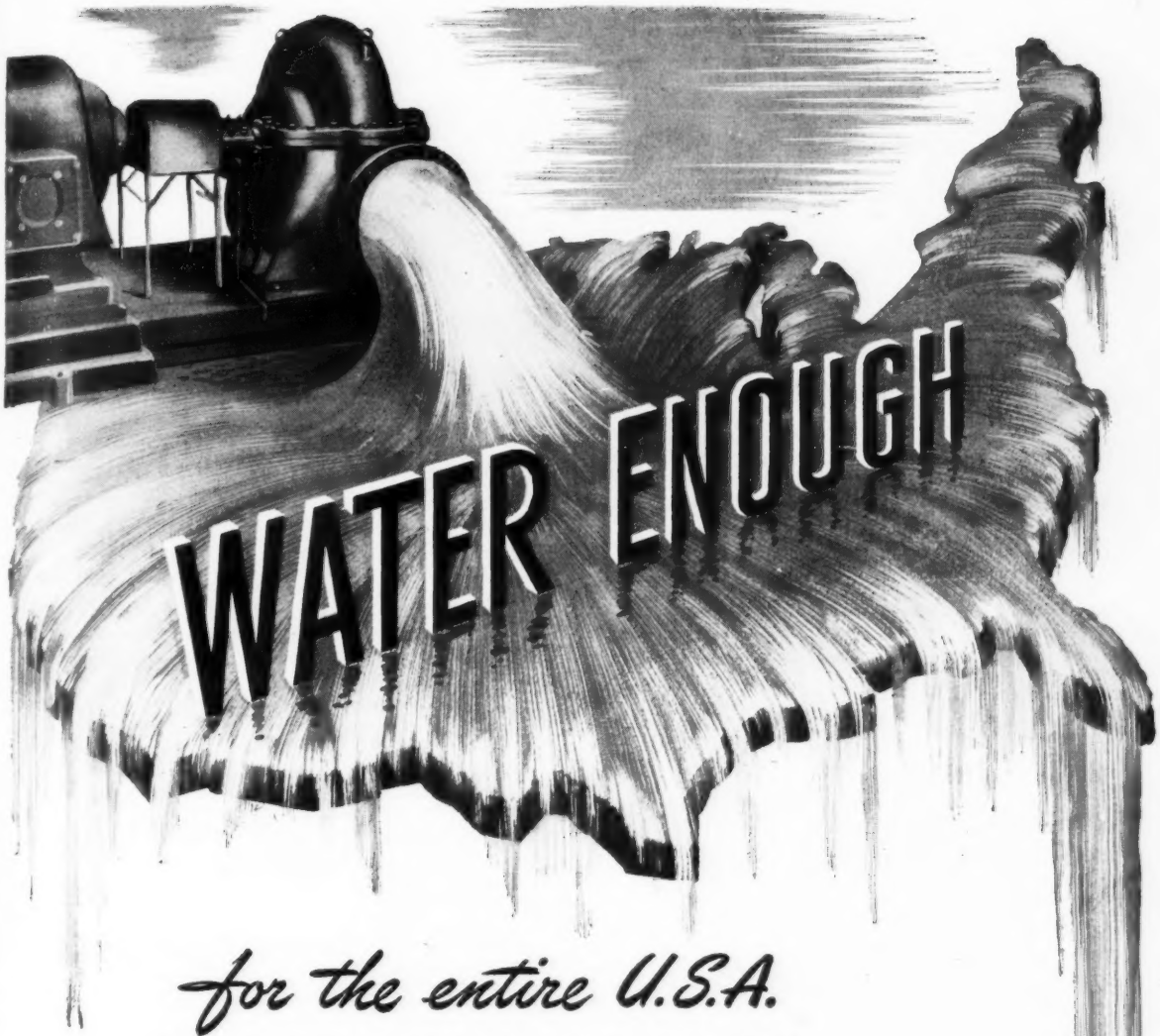
Here's how it works: original copies of Birth, Death and Marriage certificates are filed separately in chronological order necessitating a quick reference index to assure accessibility of these important public records. So Visible Index cards for each certificate are typed and inserted in the *current index,* which is Soundex-ed for fast cross reference to all three records. This record is Dexigraphed periodically in reduced size for permanent reference use, and the original cards may be destroyed; the new current index is begun on the same Index Visible frames. What you have is perpetual always-up-to-date fast-reference to all vital statistics—current and past, with a minimum outlay for equipment.



Visible Index with Soundex-ed Cross Reference *is the fastest known finding method; Dexigraph is the proved, simple "split second" method of office photography that eliminates* all *transcription errors and time-consuming proofreading.* Dexigraph also gives you easily and economically produced copies of records for furnishing to the public. *Why not assure these benefits to your department? Contact your Remington Rand branch office for* specialized *advice on Public Records maintenance, or write to Remington Rand Inc., Systems Division, 315 Fourth Avenue, New York 10, N.Y.*

Remington Rand

THE FIRST NAME IN RECORD SYSTEMS



for the entire U.S.A.

SUPPLIED BY DE LAVAL PUMPS

De Laval centrifugal water works pumps built to date have a total capacity of approximately 20 billion gallons daily—more than enough to supply all water requirements of the entire population of the United States. The City of Chicago, alone, is served by De Laval pumps having a total capacity of over one billion gallons daily; St. Louis, six hundred million; Cleveland, seven hundred million; Philadelphia, three hundred million; and so on down the list. In fact, 78% of all American cities of over 100,000 population are served by De Laval water works pumps.

Sales Offices

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TURBINES • HELICAL GEARS • WORM GEAR SPEED REDUCERS • CENTRIFUGAL PUMPS • CENTRIFUGAL BLOWERS AND COMPRESSORS • IMO OIL PUMPS

Make Water Safe Around the Clock

Water shouldn't be half-safe, nor safe only half the time. It should and *can* easily be safe 24 hours a day with the use of SOLVAY Liquid Chlorine.

You get real protection with SOLVAY Liquid Chlorine, because of its uniformity and controlled quality. Specify SOLVAY when you order your cylinders, tank cars or ton containers.

when you need chlorine specify

SOLVAY TRADE MARK REG. U. S. PAT. OFF. **LIQUID CHLORINE**

SOLVAY SALES CORPORATION

Alkalies and Chemical Products Manufactured by The Solvay Process Company

40 Rector Street **New York 6, N. Y.**

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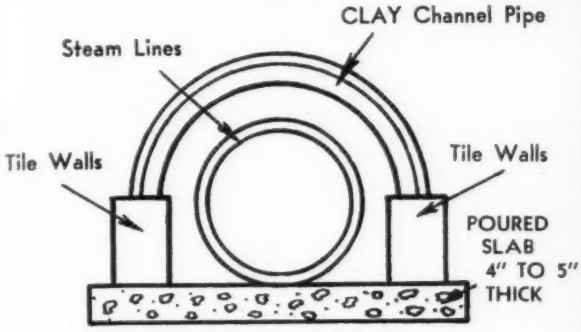
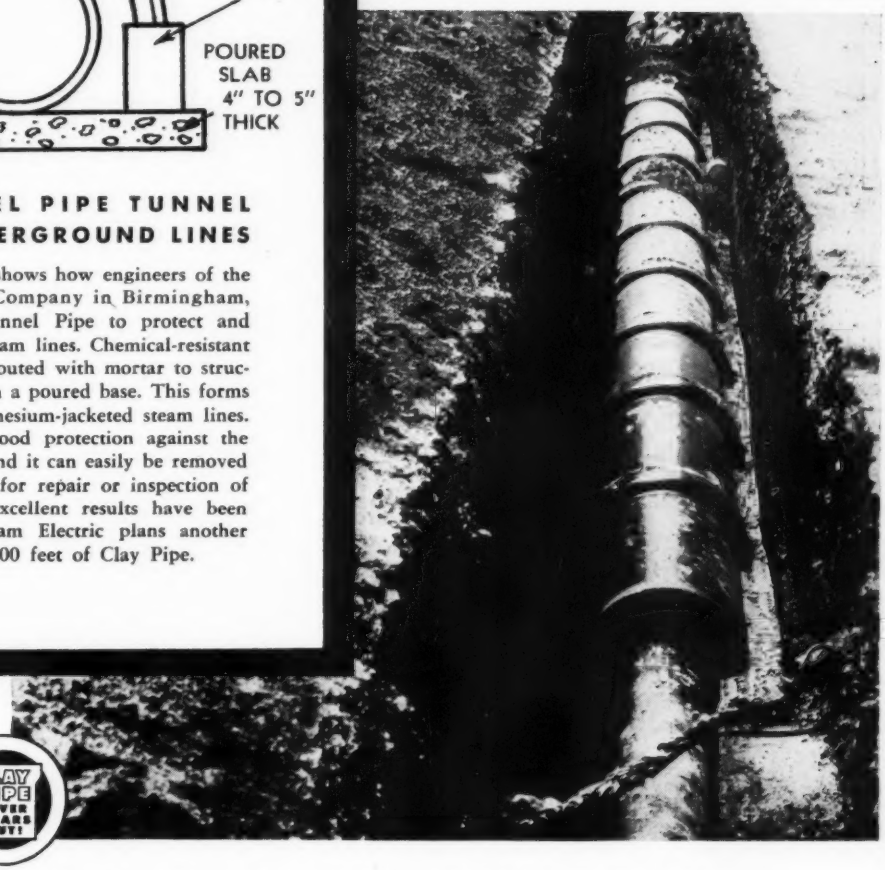
ENGINEERS DISCOVER NEW USES FOR CLAY PIPE



CLAY CHANNEL PIPE TUNNEL PROTECTS UNDERGROUND LINES

Cross-sectional diagram shows how engineers of the Birmingham Electric Company in Birmingham, Alabama use Clay Channel Pipe to protect and insulate underground steam lines. Chemical-resistant Clay Channel Pipe is grouted with mortar to structural tile sidewalls set on a poured base. This forms a "tunnel" for the magnesium-jacketed steam lines. The Clay Pipe offers good protection against the dampness of the earth, and it can easily be removed to provide quick access for repair or inspection of the steam lines. Such excellent results have been obtained that Birmingham Electric plans another similar installation of 2800 feet of Clay Pipe.

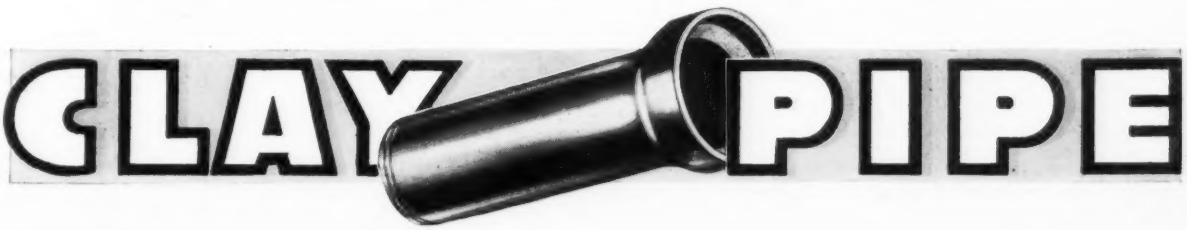


CLAY PIPE NEVER WEARS OUT!

THE same durability and corrosion-resistance that have made Clay Pipe the traditional material for all types of sewerage installations is winning wide approval in solving new and different problems. Engineers find Clay Pipe ideal insulation and protection for underground steam lines. Also, Clay Pipe is being used throughout the chemical industry to carry fluids that would soon destroy most other pipes. Clay Pipe is an economical and durable material for ducts that carry off strong industrial fumes. Clay Pipe is especially useful for drainage of modern highways and airports where heavy loads must be supported safely. For information about your Clay Pipe problems, write to the nearest regional office listed below.

NATIONAL CLAY PIPE MANUFACTURERS, INC.

111 W. Washington St., Chicago 2, Ill.
522 First National Bank Bldg., Atlanta 3, Ga.
1105 Huntington Bank Bldg., Columbus 15, Ohio
571 Chamber of Commerce Bldg., Los Angeles 15, Calif. C-947-4



XUM

Toe drain trench with 30-inch ARMCO Perforated Pipe partly backfilled. The dam is nearly 3 miles long with dike extensions of 5,800 feet. During normal operation the reservoir will inundate about 140 square miles.

THIS PIPE GUARDS A DAM AND 2 BILLION GALLONS OF WATER

At each junction of mains and laterals a corrugated metal manhole, reducing from 48 to 24 inches in diameter, provides access for cleanouts and inspections.

Here's how engineers employed an Armco subdrainage system to protect one of the world's largest rolled-fill earthen dams nearly 3 miles long.

The 30-inch ARMCO Perforated Pipe was installed under the dam with 12, 18, 24 and 30-inch laterals and outlets. By intercepting seepage water resulting from hydrostatic pressure, the system effectively prevents uplift or boiling on the downstream side.

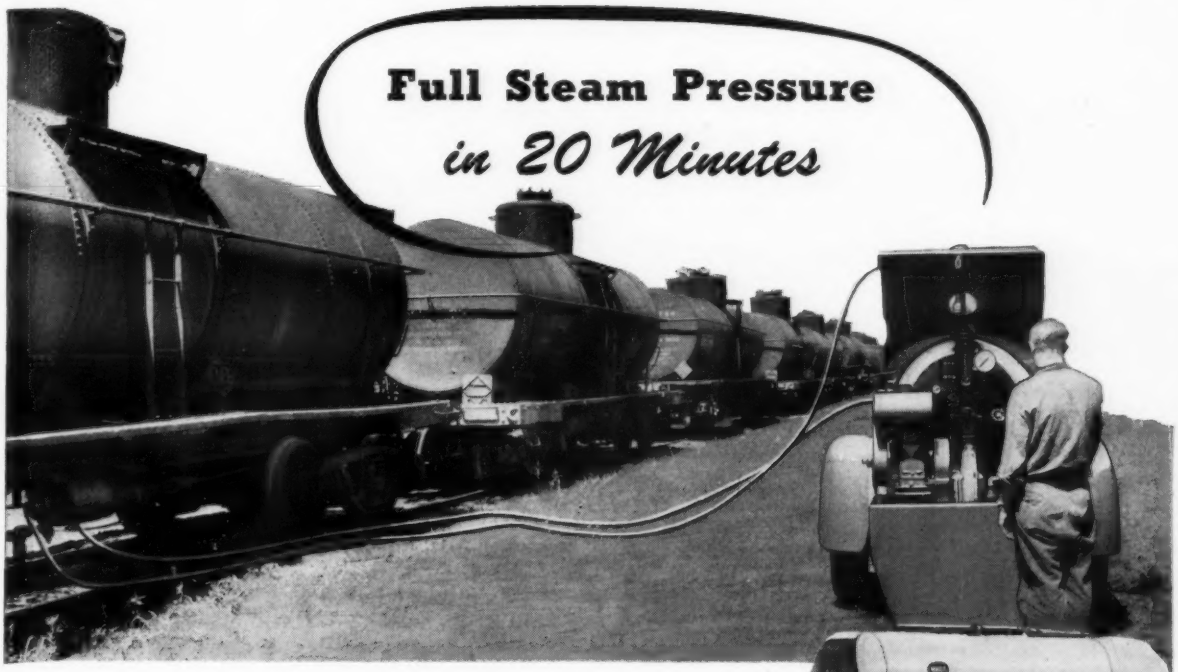
Installation was easy, thanks to the light weight and freedom from breakage of ARMCO Pipe. Tight joints, so essential to the safety of the dam, were assured by Armco's method of joining long pipe lengths with sturdy band couplers.

You'll find an Armco subdrainage system indicated wherever harmful ground water must be removed to keep subgrades firm and stable. ARMCO Pipe has proved its ability to resist crushing, cracking or disjointing under the impact and weight of heavy loads. Efficiency remains high because there is less chance of silting or clogging. Write today for complete information. Armco Drainage & Metal Products, Inc., and Associated Companies, 815 Curtis St., Middletown, Ohio.

ARMCO
PERFORATED PIPE

ARMCO

Full Steam Pressure *in 20 Minutes*



From a cold start, the *Bros* Steam Generator produces full pressure, hot, dry steam easily and economically in just 20 minutes. A self-contained package unit, this all-purpose steam generator can be wheeled to any job—to tank cars for heating bitumens . . . to storage tanks . . . to catch basins for thawing . . . to refrigerator cars . . . to steam pile drivers. As a stationary installation, it serves as operating equipment where steam is needed.

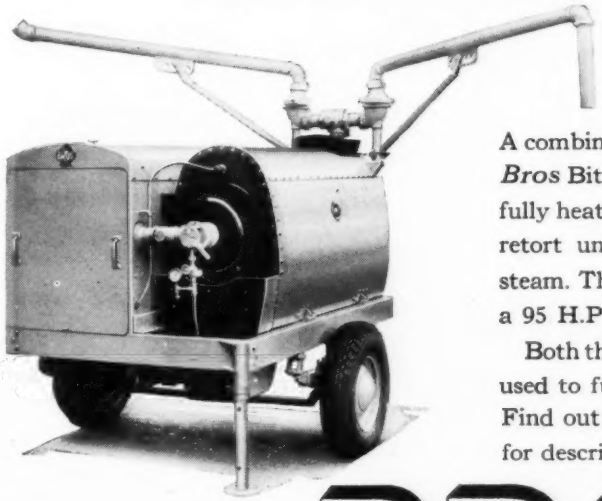
BROS Steam Generator

The attractive, streamlined *Bros* Generator is compact and highly portable. It gets jobs done faster and at lower costs. Available in 26, 41 and 55 developed H.P. units.

Faster Bituminous heating with the

BROS

CIRCULATOR



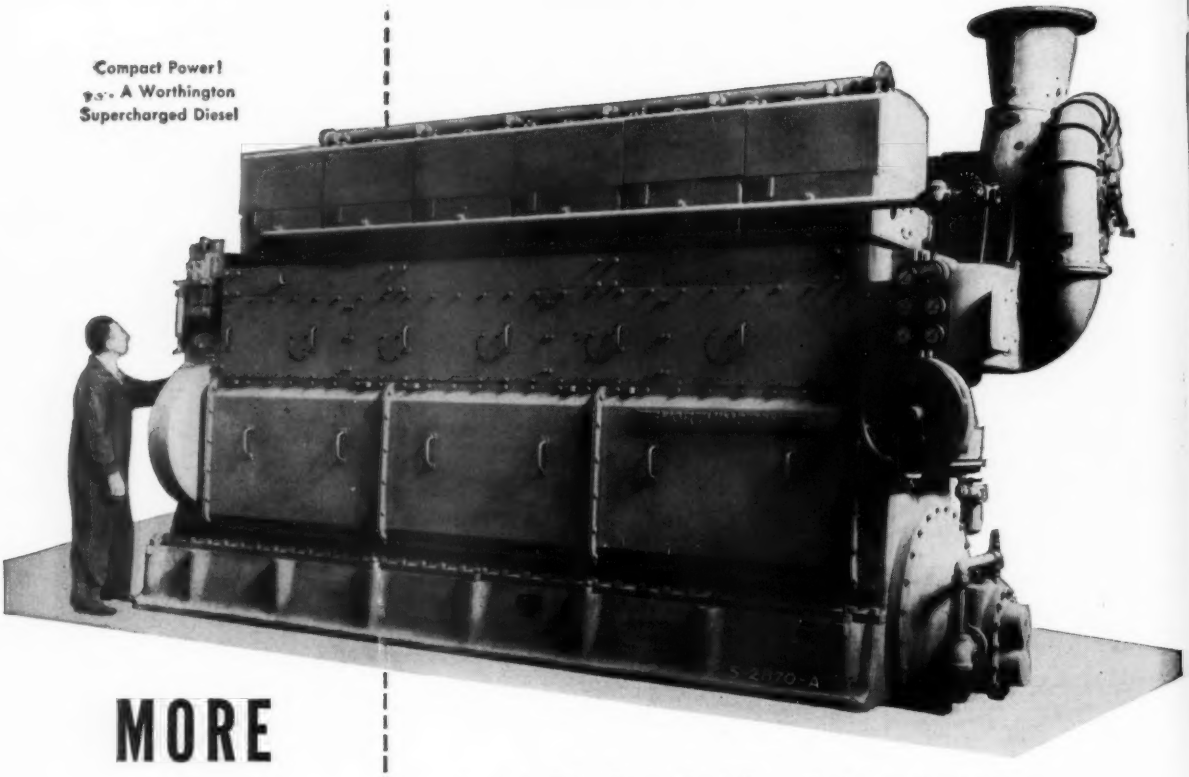
A combination heater and high speed pumping unit, the *Bros* Bituminous Circulator needs only 2 to 3 hours to fully heat and unload a 10,000 gallon tank car. Its direct retort unit heats to temperatures unobtainable with steam. The speedy, economical *Bros* Circulator includes a 95 H.P. power unit in its compact design.

Both the *Bros* Generator and *Bros* Circulator may be used to further speed up heating of heavier materials. Find out how *Bros* can answer your problem . . . write for descriptive information.

BROS

WM. BROS BOILER AND MANUFACTURING COMPANY • MINNEAPOLIS 14, MINNESOTA

Compact Power!
... A Worthington
Supercharged Diesel



MORE

KILOWATT HOURS

PER GALLON

OF FUEL OIL

LESS

INSTALLATION

MAINTENANCE

AND LUBRICATION

COSTS

... with Worthington 4-cycle Supercharged Diesels

In a tropical climate, furnishing electricity for motor-driven refrigeration compressors is one of the toughest engine-jobs going — calling for completely dependable, uninterrupted output. That's why the following record of a Typical Worthington Diesel installation for a big Central-American refrigeration plant is of vital interest to every power user. At the end of 34 months of continuous operation, three Worthington SDD-6 Diesels (500 kw. supercharged) produced these results:

Hours of operation, combined	43,764
Average kilowatt hours per year, combined	4,993,633
Running-engine-capacity factor	64.7%
Average kilowatt hours per gallon of fuel oil	14.08
Total Annual maintenance cost per engine H.P.	33.8 cents

Here's 10% to 15% more kilowatt hours per gallon of fuel oil, with minimum upkeep and replacement costs! Then there's 25% lower lubricating oil consumption . . . big reductions in building space, foundation materials and installation labor . . . adding up to tops in Diesel efficiency, with savings all along the line!

Today, Worthington installations of like capacity supply entire communities with electricity, while all over the world Worthington Diesels meet industry's needs for continuous, trouble-free, economical power.

Write for details . . . and further proof that *there's more worth in Worthington. Worthington Pump and Machinery Corporation, Engine Division, Buffalo, N. Y.*

WORTHINGTON

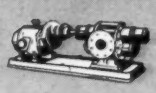
E7-2

YOUR PARTNER IN POWER PROGRESS

Diesel engines, 150 to 3,290 hp . . . gas engines, 175 to 3,500 hp . . . dual fuel engines, 150 to 3,290 hp.

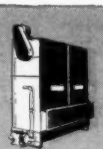
WORTHINGTON-BUILT AUXILIARIES

Air King Compressors



Oil Transfer Pumps

Cooling Water Circulating Pumps



Evaporative Type Engine Water Cooler

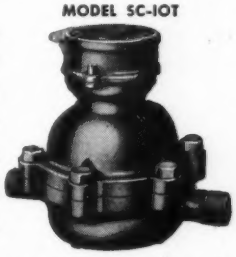
Badgers meet ALL REQUIREMENTS

There is a BADGER METER to meet your every requirement from a 5/8" household service to a 12" industrial installation.

MODEL A-IOT

The model A-IOT is of a frost proof design. Breakable bottom plates are attached to the main housing by heavy stud bolts. There is no possibility of corrosion or dirt causing the bolts to stick.

MODEL SC-IOT

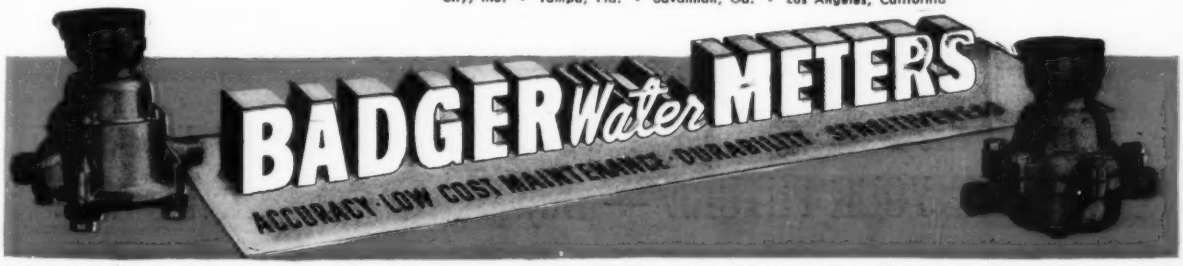


The model SC-IOT is a split case meter for use in warmer climates, where there is no danger of freezing. Working parts can be removed from the housing without disconnecting meter from the line.

Both models have two-piece snap joint chambers, three piece discs and oil enclosed gear trains. Open gear trains are available without extra cost.

BADGER METER MFG. CO. · Milwaukee 10, Wisconsin, U. S. A.

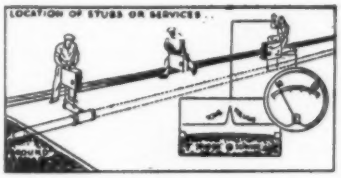
Branch Offices: New York City - Chicago, Illinois - Waco, Texas - Portland, Ore. - Salt Lake City, Utah - Seattle, Wash. - Cincinnati, Ohio - Philadelphia, Pa. - Denver, Colo. - Worcester, Mass. - Kansas City, Mo. - Tampa, Fla. - Savannah, Ga. - Los Angeles, California

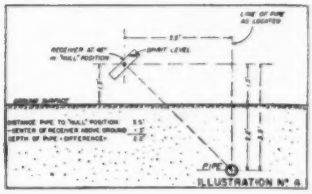


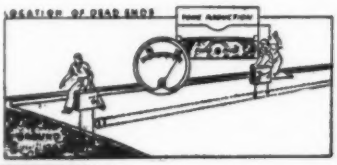
Buried Pipe and Cable Finder

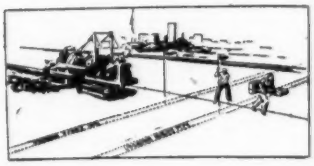
M-SCOPE

Water and Oil Leak Detector









The M-Scope is solving—successfully—the varied problems involved in the development, operation and maintenance of buried pipe and cable systems and is in daily use by representative organizations in such important groups as:

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- GOVERNMENT PROJECTS
- SEWERAGE AND WATER PLANTS
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Free 16-Page Booklet Upon Request

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PIPE LINE EQUIPMENT

141 ASHLAND PLACE, BROOKLYN 1, NEW YORK

"GUNITE" CONCRETE

(Since 1915)

SPECIALISTS IN CEMENT GUN WORK

RESERVOIR LININGS (NEW AND OLD) • CONCRETE AND MASONRY REPAIRS • STEEL ENCASEMENT • FIREPROOFING • STEEL COAL BUNKER, STACK, HOPPER, AND PLATE LINING • SEWER LINING AND REPAIRING • CANAL, DITCH, AND DRAIN LINING.

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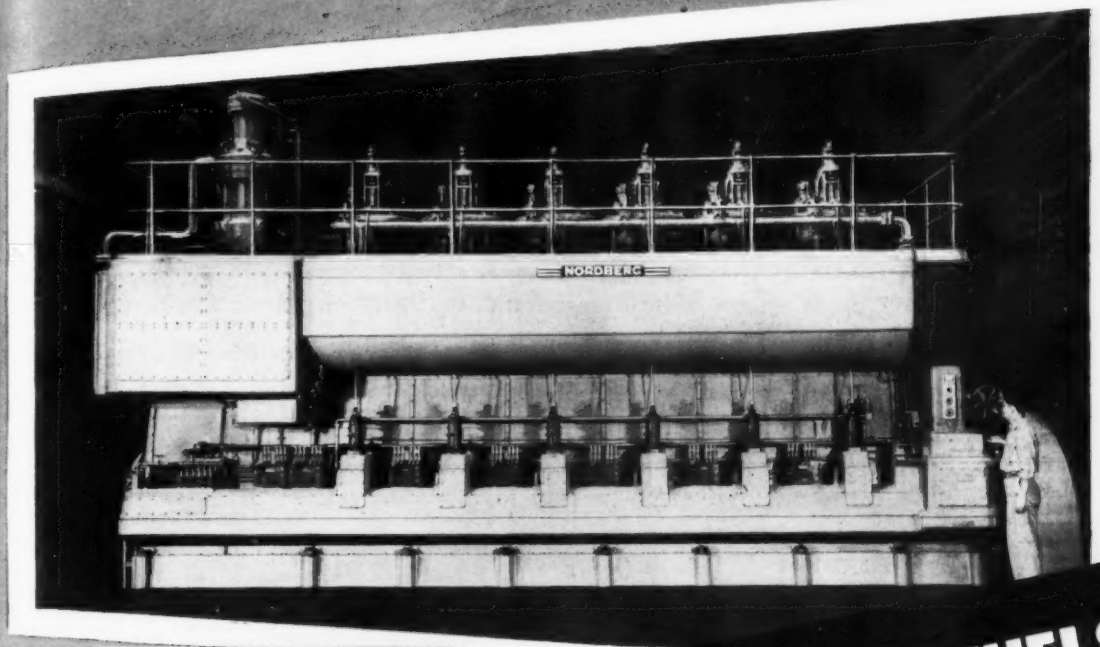
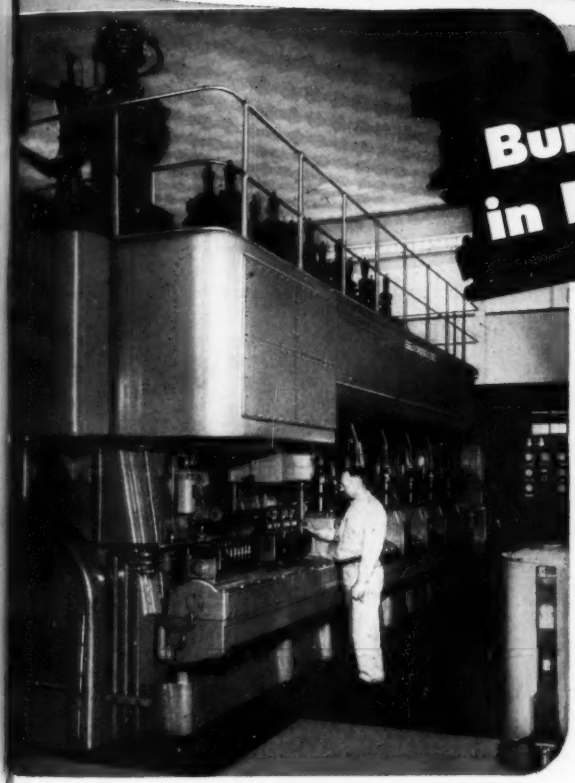
VALVES & HYDRANTS

M & H products, including pipe line accessories, are well known for high quality of material and expert workmanship. They are made according to standard specifications and have been used for many years throughout the country. Write for Catalog No. 34. Address M & H Valve and Fittings Company, Anniston, Alabama.

BUY all the Bonds you can . . . KEEP all the Bonds you buy
PROTECT YOUR FUTURE — Buy your EXTRA Bonds now!



Burn GAS and OIL FUELS in NORDBERG DIESELS



Shop and installation views of a six cylinder, 2400 horsepower, two-cycle, convertible gas and oil burning Diesel engine in the municipal power plant at Estherville, Iowa.

• Approximately 150,000 horsepower of convertible gas and oil burning Nordberg Diesels are in successful operation. In localities where natural gas is available, Nordberg Diesel-Gas engines have shown remarkably low power production costs. Since these engines operate on either gas or oil fuels without change of major engine parts, it is possible to burn the most economical fuel. . . . Nordberg Diesels arranged for gas burning are built in two and four-cycle types in sizes up to 8500 in a single unit. If you are contemplating additional power equipment, investigate the merits of dependable and economical Nordberg gas burning Diesel engines.

NORDBERG MFG. CO.
MILWAUKEE 7, WISCONSIN

NORDBERG
DIESEL ENGINES

Look In

The Municipal Index

Letterheads of eight cities and a consulting engineer were recently reproduced here. There wasn't room to show the text of the letters—but below is what each said.

The Municipal Index is kept available for all department heads and is in frequent use.

F. J. McAndrew, Manager
The St. Joseph Water Co.
Saint Joseph 7, Missouri

We use *The Municipal Index* for locating suppliers who are listed as handling various types of street equipment in which we are interested.

Innis W. Ward
Commissioner of Public Works
The City of Duluth, Minn.

I find *The Municipal Index* to be most valuable in the selection of the proper equipment for municipal work and make it a practice to consult The Index first when equipment is to be purchased.

E. N. Fletcher, City Engineer
The City of Des Plaines
Cook County, Illinois

We keep *The Municipal Index* at hand for ready reference for securing information about the manufacturers of a wide variety of materials and equipment.

Murray A. Wilson
Wilson & Company
P. O. Box 518
Salina, Kansas

The Municipal Index and Atlas is one of our most-referred-to books in this office and is used by almost every department. We have just recently purchased an asphalt distributor, stone spreader, drag line, etc., through the cooperation of THE AMERICAN CITY magazine.

Harry L. Fisher, City Engineer
The City of Mobile, Alabama

We use the manufacturers' portion of *The Municipal Index* on many occasions in determining the companies that we wish to contact in regard to inquiries about materials and equipment.

H. C. McClintock, City Manager
City of Boulder, Colorado

Anything that is worth looking for can be found in *The Municipal Index.* That is the value I place on it with regard to all city equipment. Each year I note improvement in the make-up and style, the clearness of type and prints. It is a book I am proud of.

O. W. Wright, Mayor
Centralia, Illinois

The Municipal Index is invaluable for reference in purchasing supplies for the city.

W. C. McCauley, Mayor
Versailles, Kentucky

More and more City Officials and Consulting Engineers tell us and show us that they are finding nearly all the products and manufacturers required for their projects and services, advertised or listed in THE MUNICIPAL INDEX. Anything you don't find in your copy, we'll try to find for you.

Address:

The Municipal Index
470 Fourth Avenue **New York 16, N. Y.**

FOR *Fuel Economy* BUY SUPERIOR DIESEL ENGINES

Superior's nearly 60 years of engine building experience has resulted in a Diesel of modern scientific design. No feature has ever been included in a Superior Diesel until it was completely tested and proved. That's why, to maintain these high standards, Superior is engaged in a $1,500,000 plant modernization program. It's the reason too, Superior Diesel Engines are of long established 4 cycle design. Experience and wide usage have shown that this principle assures low fuel consumption and lubricating oil economy.

Superior Diesel Engines operate on a wide range of Diesel fuels with clean combustion and high efficiency. For proof of real fuel economy note the clear exhaust of a Superior Diesel . . . a sure sign that fuel is being efficiently burned and converted to economical power.

Eight years ago these three Superior Diesels went to work providing low cost power for a Southern Municipality. After five years of operation, the plant had completely paid for itself. In 1946, two Superior Model 80 Supercharged Diesel Engines were installed to meet the demand for service expansion.

Superior DIESEL

SUPERIOR ENGINES DIVISION OF THE NATIONAL SUPPLY CO., PLANT AND GENERAL SALES OFFICE: SPRINGFIELD, OHIO

Investment in SATISFIED TAXPAYERS

• Housewives, storekeepers and property owners . . . Health Departments, Chambers of Commerce, Civic and Women's Clubs . . . all satisfied when they see the Patrol Sweeper in action . . . satisfied because they see what they are getting for some of their tax money . . . see tangible results in a cleaner, healthier and more beautiful community.

Yes, for satisfied taxpayers there is no better investment than an Austin-Western Patrol Sweeper.

AUSTIN-WESTERN COMPANY, AURORA, ILLINOIS

BUILDERS OF ROAD MACHINERY

Austin Western

SINCE 1859

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Louis R. Howson, Alvord, Burdick and Howson, Engineers, Chicago, Ill.
From an article in the Journal of the American Water Works Ass'n.

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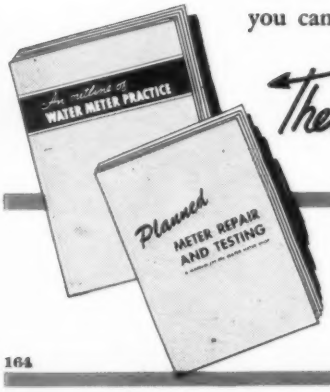

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The American City

New York Prepares for the United Nations

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AFTER a year of investigating sites for a permanent home for the United Nations—a search which carried the site committee from New York State's Westchester County to California's San Francisco—the final selection was made with dramatic suddenness. John D. Rockefeller Jr's offer of seventeen acres of land in the center of Manhattan was accepted after only thirty-six hours of deliberation. This decision made headlines in newspapers throughout the world.[1]

The newspapers painted a picture of a skyscraper community on the banks of the East River. What they omitted was the story of the intricate web of human relationships necessary to transfer the word-picture to reality. The gift of a philanthropist is but the beginning; at the present moment the skills of the diplomat, the lawyer, the sociologist, the economist, the realtor, the politician, the architect, the engineer, and the city planner are being applied.

It is not the purpose of this article to discuss the whole legal framework of the United Nations, nor even to go into detail as to its relations with the United States. Rather the focus is New York—New York as it is affected by the decision of the United Nations to build its permanent headquarters within the boundaries of the metropolis.

In the seventeenth century, the site now selected for the prospective world capital was known as Turtle Bay Farm. Between what is now 45th and 47th Streets, the river extended inward towards First Avenue. This indentation, known to the Dutch originally as Deutel Bay, was later corrupted by the English to Turtle Bay.[2]

OFFICIAL UNITED NATIONS PHOTO

View of the site chosen for United Nations permanent headquarters looking north from 42nd Street and 1st Ave.

By the time of the American Revolution, the character of the neighborhood had changed sufficiently to include grist mills, warehouses, and a boat building plant. "Paddy Corcoran's Roost," a shanty colony concentrated largely on Prospect Hill above Forty-Second Street, occupied the southern section of the site in pre-Civil War days.

In the twentieth century, although the neighborhood had become a melee of tenement houses, meat packing establishments, and grain lofts, rapid changes were taking place in adjacent areas. As early as 1927, Tudor City, twelve skyscraper buildings housing 6,500 persons, was built on Prospect Hills at 42nd Street overlooking the East River. At the northern end of the site Sutton Place and Beekman Place were developed as high rental housing areas. The completion of the East River Drive with its intermittent park areas contrasted with the substandard character of many sections fronting the river.

The real estate firm of Webb & Knapp Inc., New York, had planned to redevelop the area given for the U.N. site and had gained control of a large tract of land on which a skyscraper community was to be built. Thus, the slow process of land assembly did not have to be undertaken — instead, the land was already "packaged" for the United Nations.

Mr. Rockefeller's offer of this land, constituting a grant of $8,500,000, made the consideration of all other sites academic.

Each of the other areas considered represented at a minimum seventy-five times as much space as the seventeen acres in the Rockefeller grant. The objective of a more or less self-sufficing community with low buildings in spacious surroundings was superseded by that of a U.N. Headquarters as an

[1] The Headquarters Committee decision was not unanimous. The opposition, 7 of a total of 40 votes, included Australia, Egypt, India, Iraq, Lebanon, Saudi Arabia, and Syria—United Nations, Department of Public Information, *Weekly Bulletin*, Dec. 24, 1946, p. 33.

[2] *Tudor City View*, Sept. 1943, p. 8; Jan. 1947, p. 7.

OFFICIAL UNITED NATIONS PHOTO

Studying models of buildings now surrounding the future capital site are members of the Board of Design Consultants, of which Wallace K. Harrison, right, is Director of Planning. Left to right: Le Corbusier, France: Nikolai D. Bassov, U. S. S. R., and Howard Robertson, United Kingdom.

integral part of the City of New York. It is expected, for example, that some members of the Secretariat will live in Peter Cooper Village, a rental housing project in process of construction by the Metropolitan Life Insurance Company, located twenty blocks south of the United Nations Site.

The $8,500,000 gift by Mr. Rockefeller was not made without some specifications for participation in the project by both federal and local governments in the form of additional grants. The donor stipulated that streets included within the area were to be given to the United Nations by the City of New York. Since the section was subjected to New York's typical gridiron street plan, this gift was considered essential to the replanning of the area. In addition, the City was to agree to acquire and to give the United Nations parcels of land essential to rounding out the site.[3]

The gift was also to be free from all taxation—federal, state, and local. The various levels of government promptly accepted Mr. Rockefeller's terms.

In handing the deed for the city-owned parcels of land to Trygve Lie, Secretary General of the United Nations, at ceremonies conducted last month, Mayor William O'Dwyer stated that this transaction was the most important event in the city's history.

Legislative Cooperation

The world capital is being set down in New York City; an atypical organization in an atypical community. Many legal consequences flow from this, for which there are few precedents. Negotiations are proceeding, and legislation has emerged at all levels—international, national, state, and local.

For the federal government the project presents two types of problems—immediate and long-term. The immediate problem is Mr. Rockefeller's stipulation that his gift to the United Nations must be free from the gift tax. (Congress has passed a bill designed to achieve this result: H. J. Res. 121, 80th Cong. 1st Sess., Feb. 12, 1947.) Long-term, special considerations are involved in the establishment of a permanent headquarters. These necessitate a convention, or treaty, to regulate the resident status of the United Nations.

For the state and local governments, legislation has been deemed essential to avoid any possible legal obstacles and thus to assure the successful functioning of the United Nations in the New York area. After consultation at the state-local level, five bills, designed to accomplish this purpose, were introduced into the New York State Legislature by the New York State Joint Legislative Committee on the United Nations. Given top priority, four of them were enacted into law during the Spring 1947 session of the New York State Legislature.[4]

Public Purpose Served

It has now been legally determined that "a public purpose is served" when New York City grants land to the United Nations. Such a gift may embrace land owned by the City, obtained by purchase, or secured by condemnation. The fact that this property is already being used for another public purpose is declared to be no deterrent. A proviso, recognizing that the United Nations may wish to acquire more land within New York State in the future, stipulates that this international organization may obtain territory through gift, grant, devise, or purchase.

The United Nations' right to use condemnation to acquire lands directly is specifically denied. This would in no way prevent the United States, New York State, or New York City from transferring land to the United Nations that has been acquired through condemnation.

Extra-Territorial Privileges

In anticipation of future extra-territorial privileges, the Governor of New York State has been authorized by the Legislature to cede jurisdiction of any land in the state acquired by the United Nations and used by it to carry on its functions.[5]

This local legislation indicates New York State's willingness to give up whatever authority it has left in the land over and beyond what the United States, under its treaty-making powers or its charter commitments, feels obliged to cede to the United Nations. Such state authority might include control over enforcement of criminal and civil law in the areas for those not covered by diplomatic immunity.

It has also been decided by legislation that a suitable setting be provided for the United Nations. At the present moment, the Queens side of the East

[3] These parcels of land, which were conveyed by the City to the U.N. last month, included a playground on 42nd St. and a strip of land 40 feet wide along Franklin D. Roosevelt Drive. The U.N. also acquired the exclusive right to the waterfront along the East River from 42nd to 48th Streets, as well as title to the streets within the Headquarters area. In turn, the U.N. has agreed to pay for the costs of reconstruction of the Franklin D. Roosevelt Drive and its approaches adjacent to the site, as well as for the costs of relocating tenants at present on the site.

[4] New York State, Senate Int. No. 1302, 1303, 1304, 1305, Feb. 10, 1947 and Senate Int. No. 2490, Mar. 3, 1947. Int. No. 1303 was vetoed by the Governor.

[5] Immunity already has been granted through the International Organizations Immunities Act which has been applied by Executive Order to the United Nations. (Public Law No. 291, 79th Cong., 1st Sess., Dec. 29, 1945, Title 1; Exec. Order No. 9698, Feb. 19, 1946, 11 Fed. Reg. 1809.) The provisions of the United Nations' Charter which commit the United States as a signatory to provide the United Nations and its personnel with legal capacity and immunities "necessary" for the fulfillment of its purposes are thus implemented.

River at 42nd Street has some glaring electric signs. The Board of Estimate of New York City has therefore been given the power to "regulate and limit signs, billboards, and advertising devices, and shows, exhibits, amusements, and displays." Legal justification is sought in terms of both general welfare and the safe and orderly conduct of the United Nations. Both the United Nations and the City of New York are given authority to use injunction proceedings to restrain violation.

Tax Exemption

The state law now provides that all property used "exclusively for headquarters and for places of assembly essential to carrying on the functions of the United Nations are exempt from the real property tax and special assessments".

At present, the city's tax return from the six-block United Nations site, not including the parcels owned by the city, is $245,777. City officials have taken the optimistic point of view that taxation on increased values of land in the adjacent area will compensate for the loss from tax exemption granted to the United Nations.

As further indication of New York State's desire to promote international good will, all non-nationals employed by the United Nations are exempt from the state income tax. One basis for the exemption is that salaries of non-nationals otherwise might be subject to double taxation and furthermore, this procedure may enable the United Nations to pay less for personnel.

Constitutional lawyers may very well argue that much of this new legislation is superfluous, since earlier legal decisions in New York State may be interpreted to imply that land used for the United Nations Headquarters constitutes a public purpose. However, both state and city officials have regarded the legislation as essential. Wary of potential taxpayer suits, they are allowing no loopholes for judicial intervention.

A Convention—US and UN

The legislation—federal, state, and local—anticipates a convention, or treaty, between the United Nations and the United States government. A good deal of what the convention hopes to accomplish has already been achieved by this legislation. However, the convention method lends it additional dignity and creates a moral obligation in the United States to adhere to its provisions.[6]

The convention undoubtedly will stipulate that the United Nations will become a legal entity with very definite prerogatives. It will be able to sue, but in turn will be sued only with its consent; it will have the power to acquire and dispose of property; it will be able to make contracts. Furthermore, this legal entity will enjoy considerable immunity from a variety of taxes, and its headquarters' site will have a certain amount of autonomy.

In determining how much extra-territoriality the United Nations needs, there are many precedents: the League of Nations, the Vatican City, the District of Columbia. If the United Nations has a social heritage, however, it stems from the League of Nations. Extra-territoriality for the U.N. will certainly be greater than the limited grant by Switzerland to the League, not only because the United Nations is a much greater undertaking than the League, but because of the commitments already made under the United Nations charter and because of the legislation now in existence.[7]

Diplomatic immunity may apply only to the top-ranking diplomats, or it may have a wider scope to include a generous percentage of the secretariat. Furthermore, the immunity may be broad enough to free the beneficiary from conforming to general municipal ordinances or narrow enough merely to free him from customs inspection.

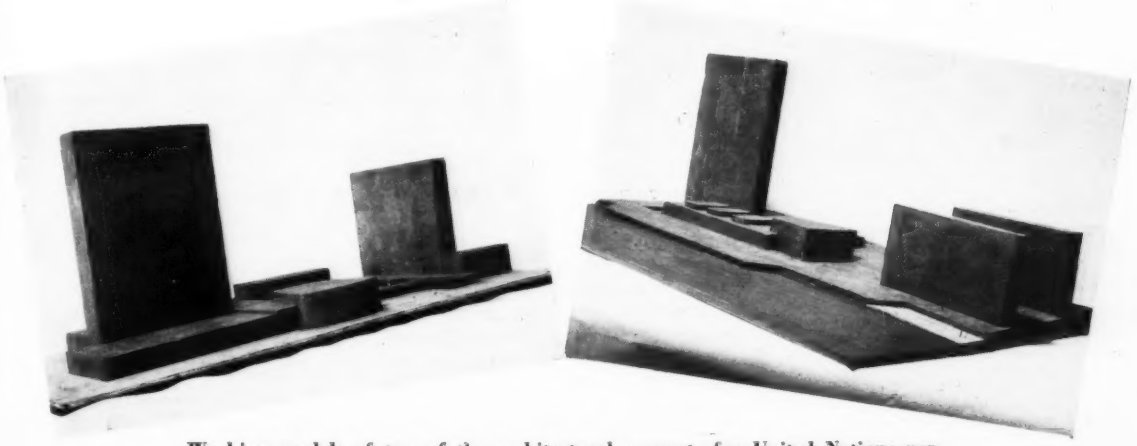
Planning and Zoning

Since New York City has no over-all plan for land use, no official long-term program was in existence for the land now constituting the United Nations site. Private enterprise, however, had recognized the potentialities of the area. The Webb & Knapp plan was for urban redevelopment on a broad scale including fifty-story office structures and thirty-story apartment buildings. Although part of the area has been acquired by Mr. Rockefeller for the United Nations, the real estate firm is planning to utilize the land which it still owns. An airline terminal, an opera house, and a hotel are tentatively projected in harmony with the new United Nations development.

The layout of the new U.N. headquarters is largely in the hands of Wallace K. Harrison, co-designer of Rockefeller Center, and at present Director of Planning for the project. He is being assisted by a ten-member Board of Design Consultants made up of leading

[6] "The United Nations Under American Municipal Law—A Preliminary Assessment," *Yale Law Journal*, June 1946, p. 782.

[7] Undoubtedly recognition will be given, however, to the fact that the United Nations will be a community within a larger community. New York City's sub-surface rights of access, for purposes of repairing water mains, sewage systems, etc., should be protected. Arrangements comparable to those made by New York City with the Federal Government should be made on a contractual basis, allowing the city to furnish such municipal services as garbage removal.



Working models of two of the architectural concepts for United Nations permanent headquarters on the Manhattan East River site drawn up by members of the Board of Design Consultants.

architects from countries in the United Nations.[8] Although there has been some agitation by architectural groups for a design competition open to all architects, reports indicate that this will not occur. The consultants are working together in their efforts to produce the plans for the headquarters in an expeditious manner.[9]

Construction Program

United Nations officials and city officials have now agreed on a construction program which schedules completion of the first U.N. building by October 1948. A preliminary report will be submitted to the 1947 session of the General Assembly which will require prompt action so final drawings and plans can be completed and construction started on the buildings as soon as possible. The urgent need is for an office building to house the U.N. Secretariat, which would include a few of the smaller conference rooms and permit the temporary headquarters at Lake Success, N. Y., to be vacated.[10]

The design staff has spent much of its time thus far in surveying present and future space requirements for the various organs of the U.N. These space requirements are now serving as a basis for the allotment of area within the headquarters and indicate to the planners what the size of the buildings must be. Much stress is placed upon the functional aspects of the headquarters, and tentative plans call for particular emphasis upon television, facsimile networks, and other instant systems of interior communications. The arrangement of the buildings with regard to light and air and provision of adequate green space is being carefully considered.

Land Use Changes

The City Planning Commission of New York City, realizing that the United Nations Headquarters needs a worthy setting, has held public hearings on recommendations for changing the zoning ordinance applicable to the area surrounding the site. The Commission's recommendations still have to be acted upon by the City's Board of Estimate. Property-interest groups as well as civic-minded organizations were present at the hearings. Although there were several individual objectors to the proposed restrictions, the general opinion seemed to be that the Commission's proposals to tighten up the regulations on height, use, and area of surrounding buildings are too conservative and do not go far enough. The site itself, previously in an "unrestricted" district, is now to be classified as a "restricted retail" district, which means that stores and shops will be permitted on the ground level of buildings within the site. Several civic groups have asked for an over-all plan and restrictions of wider scope for the whole surrounding area.

Economic predictions for land use have been completely changed since the advent of the United Nations. Inflated land values, coupled with projected skyscrapers, point toward a new life cycle for the area and will constitute a counteracting force to the northward movement of New York City.

Owners of real estate adjacent to the United Nations site have already experienced increases in value of at least one-third, and in several cases parcels have sold for twice their pre-United Nations value. Real estate operators are proclaiming that "it is the best thing that has happened to New York City in the last twenty-five years."

New York City—Logical Headquarters Choice

Geneva's experience with the League of Nations may be cited to support the selection of a site within an urban metropolis. Geneva, a relatively small community, had little to offer in the way of cultural advantages; there was a dearth of theaters, opera, museums, etc. Furthermore, the Genevese were somewhat antagonistic to the international staff; they regarded them as interlopers responsible for high rents, increased wages for servants, and the "new radicalism." The international community, thus isolated, became ingrown. Social protocol assumed proportions out of perspective to its actual significance; a sense of unreality pervaded the community to the extent that the secretariat in its official actions mistook form for substance.[11]

It is perfectly evident that the United Nations, located in New York City, will be subjected to none of these limitations. Instead, there are the liabilities of urbanism. Objectionable features of the Manhattan site were spotlighted by the representative of Iraq. From his point of view the site is too small, hemmed in by adjacent, heavily populated territory, and subjected to smoke and noise. He epitomized the site as "a tormented area unfit for an organization like that of the United Nations Headquarters."

Official Enthusiasm

From the beginning, official New York City has been enthusiastic about the United Nations and consequently has treated probable international complications in a cavalier fashion. The metropolis which could previously do business in terms of the familiar pattern of federal and state aid is now confronted with problems at the more remote international level. Its response has been immediate and cordial, and the framework for an international community functioning within the city has already been created.

Lack of organized adverse citizen reaction may be attributed to a number of factors: relatively few people are to be dispossessed; there are no emotional attachments here to ancestral homes or favorite golf clubs. The necessity of removing a 90-year-old red brick church, however, has caused consternation among parishioners. New York City is already a heterogeneous community: therefore, the coming of an additional element constitutes no threat of any general kind. Apprehension over the impact of an international community in a local setting was responsible for some of the less-than-cordial response by semi-rural communities to the U.N.'s advances.

The United Nations, big in concept but small in territory, will be physically surrounded by a vital city. Legal isolation has been recognized, but the pragmatics of fire prevention, sewage disposal, and other city services will develop a pattern of inter-relationships which no community, even an international one, can disregard.

Paterson, N. J., increases local interest in U. N.

Read "Paterson Visits United Nations at Lake Success" on page 104 of this issue.

[8] The ten consultants named are G. A. Soilleux, Australia; Gaston Brunfault, Belgium; Ernest Cormier, Canada; Sven Markelius, Sweden; Julio Vilamajo, Uruguay; Oscar Niemeyer, Brazil; Ssu-Cheng Liang, China; Charles Le Corbusier, France; Howard Robertson, United Kingdom, and N. D. Bassov, U.S.S.R.

[9] Their methods contrast with those used in the construction of the League of Nations Palace at Geneva, for which 10,000 plans were submitted to an international jury in January, 1927. The League Secretariat did not move in until February, 1936, and the building was not completely finished until 1938.

[10] It has been learned that U.N. has agreed to acquire the uncompleted eight-story office structure of the New York City Housing Authority which immediately adjoins the site, and that some headquarters units may move into this building as early as July of this year. Although the mechanics of financing the transaction have not yet been worked out (there are $1,500,000 in privately held Housing Authority bonds outstanding against the structure), it has been reliably reported that the structure would house U.N. facilities that are now in Manhattan until the permanent headquarters buildings are under construction.

[11] Egon F. Ranshofen-Wertheimer, *The International Secretariat*, Carnegie Endowment for International Peace, 1945, p. 421.

Throw him OUT! He's Smog!

COURTESY OF DETROIT . . . TODAY AND TOMORROW

"His soul is a dense black. His breath is soot and fly-ash. Like Kilroy, he leaves his calling card everywhere; Smog was here . . . Smog was here. "You'll find him on your face, in your eyes, on your clothes, your curtains, your gloves; in your clothes closets, your car . . . He steals from your bank account and runs up your doctor's bills." Smog was thus described in a recent issue of *Detroit . . . Today and Tomorrow*, newsletter of the Citizens' Housing and Planning Council.

Detroit Presses Anti-smoke Program

Other cities are also working to eliminate this unnecessary nuisance, which costs millions annually in property and health damage.

A CITY-WIDE campaign to arouse interest in smoke abatement and rat elimination programs, spearheaded by the Detroit Citizens' Housing and Planning Council, brought concrete action during the budget hearings before the Common Council in March.

It is conservatively estimated that at least 100,000 Detroiters were represented at the hearings through the 70,000 individuals who signed smoke abatement petitions, the thirty or so organizations which sent letters or resolutions to the Mayor and Council, and the people who came themselves to request action to arrest these destroyers of property and health.

Reproduced here is "Smog," a Detroit cartoon character, who appeared in neighborhood newspapers and was also "heard" on one-minute radio announcements in the successful campaign to stimulate citizen interest in the problem.

One hundred thousand dollars was allocated in the city budget to hire additional personnel for smoke inspection. This means an inspection and enforcement force of approximately twenty, which will give Detroit about seven times as much coverage for its 139 square miles of territory as it had heretofore.

For a vigorous public education campaign on smoke and rat elimination, $35,000 has been allocated this year, which, added to $15,000 left over in last year's Department of Public Works budget, will total $50,000 in all.

Another significant development is an area-wide conference conducted last month with city officials of all municipalities in the metropolitan region for the purpose of discussing ways and means of cooperation on the smoke and sanitation programs.

Among the other cities which have made much progress in eliminating the smoke nuisance is St. Louis, Mo. Only two hours and ten minutes of "moderate" smoke palls were recorded in the first four months of the St. Louis heating season. Before revised smoke restrictions became effective, St. Louis averaged annually more than 100 hours of thick smoke palls.

Enforcement of anti-smoke measures in Chicago has reduced air pollution 15% during the past year. Before current action was taken, soot fall averaged nearly 70 tons per square mile per month. Now Chicago inspectors are concentrating on residential as well as industrial violators of smoke control regulations.

Cincinnati estimates that smoke costs 300 lives a year because of increased pneumonia and cancer rates. Coupled with municipal smoke control programs, the universities of Cincinnati and Louisville are conducting research smoke control through better combustion of fuels, especially soft coal.

Cleveland also has reported considerable progress in smoke control. Stricter enforcement of the city smoke code, resulting in installation of smoke-abatement devices by many more railroads and factories, reduced air pollution in Cleveland to a record low. The city's staff of smoke inspectors was doubled last year, and a new smoke control ordinance was proposed, but no final action has been taken.

The drafting of a new smoke control code is under consideration in Milwaukee, while the Wisconsin legislature is studying a bill which would authorize Milwaukee County to enact and enforce a county-wide smoke abatement law.

Local governments in the Los Angeles area also are working toward formation of a unified smog-control district to fight air-pollution on a regional basis. Action to curb smoke is being taken in numerous other cities, including Omaha, Pittsburgh, Richmond, New York, and Providence, R. I.

Tree-Roots in the Sewer

Ridgewood, N. J., solved this problem and at the same time uncovered some interesting and useful sewage treatment developments.

TREES make a difference in sewage treatment, although they don't actually contribute to the sewage flow. If we consider the case of Ridgewood, N. J., we will see that the roots, by clogging the sewers, change the nature of the sewage and make it more difficult to treat. But Ridgewood has a superintendent of sewage treatment with a mind inquisitive enough to probe the full extent of this effect; the sanitary engineering profession thus falls heir to a fuller understanding of sewage treatment and obtains better tools to employ when rehabilitating the "used water" in sewers.

Tree Roots As Teachers

For example, trees have taught Superintendent John Hood that there is more to sewage than a 5-day BOD count. They have taught him the wisdom of considering the collection system when analyzing and providing sewage treatment. And he has learned from them the vital importance of the useful water works determination, the carbonate equilibrium, applied to the sewage works field.

Here is what these lessons have done for him. Superintendent Hood has learned that it is possible to deliver the sewage to the plant in a fresher condition. Previously, his plant had to receive a sewage that was stale, septic, and so loaded with corrosive hydrogen sulphide that it caused the structural failure of parts of the plant. He has learned to treat the raw sewage so that its BOD is reduced from 350 ppm to an average of 30 when it leaves, even though the plant's capacity is somewhat overloaded. Because of these lessons he has been able to cut operating costs by more than $6,000 per year in the process.

A fair record for a superintendent to roll up because of a bunch of trees, wouldn't you say? This is the way it happened.

Ridgewood is famous throughout northern New Jersey for its trees. This little city of some 18,000 has quiet streets, over which are arched innumerable trees. Visitors constantly admire these trees; but, naturally, they fail to see the sewerage difficulties.

For the roots of each tree search out the sewers, reach through the joints, get both food and water from the sewage, and gradually clog the sewer. This means that each house connection turns into a small, poorly operated septic tank that discharges into the sewer a stale, septic "effluent" that is high in pH and high in alkalinity. It also means that this septic sewage encourages the growth of certain fungi which result in the production of odorous sulphides.

Superintendent Hood had a problem not only of treating the sewage when it finally arrived at the plant, but also that of bringing the sewage to the plant in a condition that would not be revolting either to the men at the plant or to people in the adjacent residential area. And he couldn't solve it by chopping down the trees.

Before seeing how he handled these problems, let us look at his plant. It is of the standard, fixed-nozzle, trickling-filter type with a hydraulic capacity of slightly less than one million gallons per day. Its ability to treat had been augmented by the introduction of chemical precipitation.

Coagulation Factors

Chemical precipitation in itself produced other complications. As water works men know, and as Superinten-

The biological action of the Ridgewood trickling filter is increased by the use of the new PFT dosing equipment.

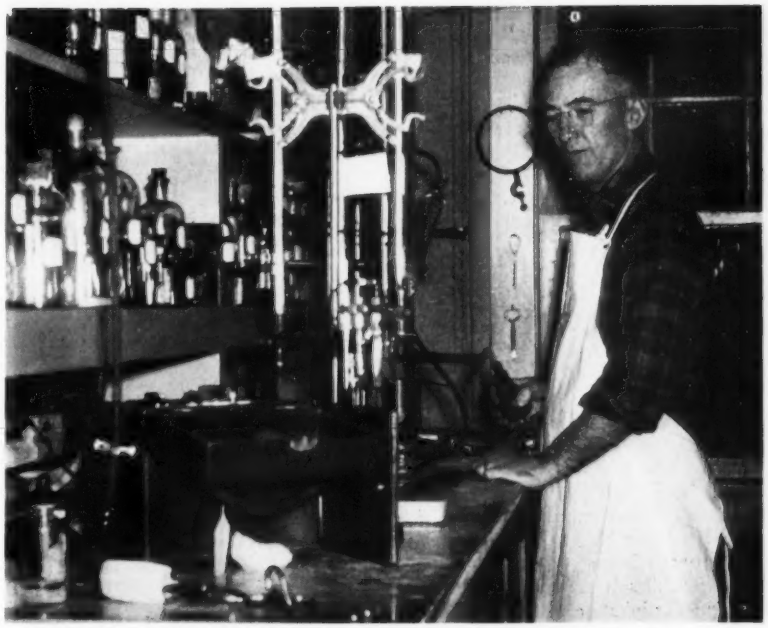
dent Hood has often pointed out in various papers, when using any of the standard coagulants such as alum or the iron salts, we coagulate successfully and economically when water is on or about the equilibrium curve, and the treated water falls in the "corrosion zone." In general, we can say that the ability of a water to produce a floc can be measured by matching it to the following table:

Zone	pH	Alkalinity	Remarks
1	7.0	100-125	Easily clarified with moderate coagulant doses.
2	7.5	125-175	Less easily clarified and requiring higher doses.
3	7.5 to 8.0	200 and over	Difficult to coagulate, requiring excessive doses.

The raw water of Ridgewood, drawn from a series of wells, had a pH and alkalinity that would at worst put it in a classification of no more than Zone 2. But by the time the water had left the homes and seeped through the tangled mass of roots in the sewers, its pH had climbed to 8.4, and its alkalinity had reached over 300 ppm.

Copper Sulphate Tried

The two points—malodorous sewage and poor coagulation—worked together. Find some way to keep the roots out of the sewers, and the sewage would arrive at the plant in a fresh condition with a lower pH and alkalinity, i. e. lower buffer value. Mr. Hood tried chlorine for odor control both in an up-sewer location and as pretreatment at the plant but he had only indifferent success because of the persistent roots. As his first countermeasure, he turned to copper sulphate.

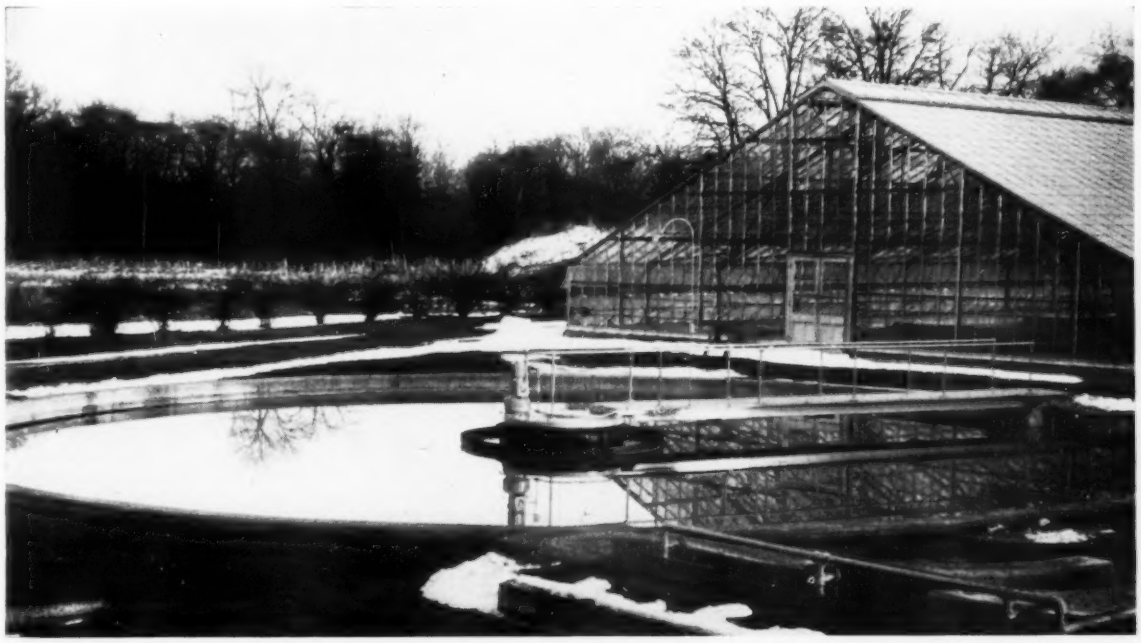


Superintendent Hood makes frequent laboratory checks on his plant's operation.

For a starter he distributed two barrels of copper sulphate over the sewer system in a two-day period. He then flushed the sewers and noticed that the result was a rich harvest of the sulphide-producing *Beggiatoa* fungus, which virtually filled the sewers in some cases. This almost immediately eliminated his odor problem, made it possible to stop up-sewer and plant prechlorination, and reduced his operating costs a comfortable $1,000 per year, but it didn't get rid of the roots in the house connections.

To make the chemical treatment work, Superintendent Hood obtained that high pH and alkalinity feature by introducing carbon dioxide in the sewage. The records show how he brought his sewage into a more favorable coagulating zone by this method. It worked well until the war.

(Turn to next page.)



The "secondary" primary clarifier which is used in the Ridgewood plant's somewhat unique layout.

The war had a voracious appetite for all chemicals, and in particular, aluminum. Water works men can tell you how they had to produce a coagulant with "wartime alum" which made the manufacturers wince whenever quality was mentioned. When the alum refused to form a floc, Mr. Hood faced the realization that to effect any treatment he would have to rely on biological processes.

In the meantime, through the cooperation of the Public Works Commissioner, A. J. Faber, and Village Engineer R. P. Raymond, the superintendent concentrated a little more on the problems of roots. He solved them by making his application of copper sulphate more thorough, bringing it into the house services, making the sewage unattractive to the roots from the time it leaves the house. He did this by assigning one man to the task of visiting each home and requesting permission to dissolve two or three pounds of copper sulphate crystals in the toilet bowl and flush them down the sewer.

To be effective, he had to apply this dosage during low-flow periods in order to insure a relatively high concentration of copper sulphate solution. He must do the work carefully, never placing the crystals in fixture traps because of the possibility of corrosion, but always in the toilet bowl.

But most important, the work has produced results. The roots no longer seek out the sewers for food and water, and those that do soon die and break away. Careful examination of the shade trees has not indicated any damage to them from the copper sulphate. The only task that remained was that of encouraging the biological oxidation processes sufficiently to produce a good effluent.

Superintendent Hood did this by revamping his trickling filter so its dosage was alternated first on one half the bed and then on the other. He installed new PFT dosing-chamber equipment that provided greater flow through the nozzles and kept the flow at a steady rate, cutting off sharply at the end of each discharge period. He depended on the trickling filter to produce this, the bulk of the biological oxidation.

Briefly, the plant operates by receiving the sewage in a grit chamber equipped with a Link Belt Detritor. The sewage proceeds through a 24-inch double-drum Comminutor that has worked continuously for the past nine years without breakdown. The Comminutor can be bypassed if necessary.

The sewage goes from the Comminutor to the primary clarifier, which provides only a relatively short detention period. The sewage is aerated in this primary clarifier to reverse septic conditions in the raw sewage. At this point of aeration the sewage receives an admixture of supernatant from the digesters and sludge from the final clarifiers.

The scraper mechanism in the clarifier is of an old design that had only a small receiving hopper to admit the settled sludge. When operating it and pumping sludge on the customary schedule of drawing once or twice a day, Superintendent Hood found that he would empty this small sludge hopper but not the tank. He installed a Paragon time-clock that pumped the sludge on a schedule of one minute in twenty, emptying the small hopper and allowing it to refill frequently.

From the primary clarifier the sewage then proceeds to the mixing tank, where a turbo-mixer aerates the sewage and causes the grease to separate, allowing the operators to skim it off and send it to the digesters. The sewage then goes to the flocculator, which aerates and freshens the stale sewage.

The sewage goes on to a "secondary" primary settling tank and passes over a measuring weir as it proceeds to the pump well. From here, it is lifted to the PFT dosing tanks and delivered to the trickling filter. This filter covers 0.6 acres, has a stone depth of 5½ feet, and is equipped with 320 fixed nozzles. From the filters, the effluent proceeds to the final clarifiers and then to the receiving stream.

The degree of treatment may be indicated by studying a typical month. For example, in January of this year, the incoming sewage showed a BOD count of 345 ppm and a suspended-solids indication of 420 ppm. In the final effluent, this BOD count was 34, and the suspended solids was only 5 ppm. The relative stability of the sewage was 95% plus.

What the Operation Shows

The plant illustrates Mr. Hood's constant efforts to aerate the sewage in order to supply dissolved oxygen so the bio-chemical oxidation can proceed at an optimum pace in the trickling filter. Close attention to this operating feature made it possible for him actually to improve treatment over the chemical precipitation method and to save over $4,000 in chemical costs by doing so.

This operation illustrates that there is more to sewage treatment than a consideration of BOD. One is on unsafe ground if he excludes the carbonate equilibrium from design considerations.

Some Fundamentals of Soil Compaction

THE first principle of soil compaction is that the material must be moistened to lubricate the particles to the point where a minimum amount of energy will be required to force the soil grains together. The greater the quantity of moisture, the less the energy required to compact the material, up to the point where the water approximately fills the voids of the material in its particular state of compaction. If too much water is used, it is not possible to compact the material without expelling the excess. This lubrication and void phenomena results in an optimum moisture content varying upon the compactive effort available, and the state of compaction to be produced.

Added compactive effort can be substituted to a limited extent for lack of lubrication if the soils are too dry. In California, sandy desert-soils have been compacted in those layers where additional water could not be supplied economically.

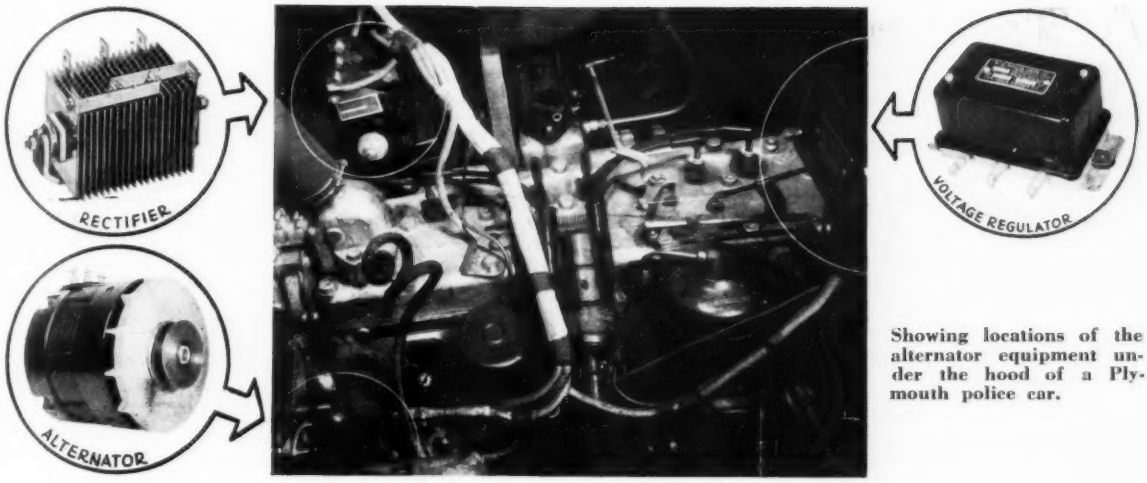
The next important factor is that the soil cannot be compacted without expelling the air. This factor is often overlooked in construction work. Heavy cohesive soils, such as clay, must be placed in thin layers to expel the entrapped air readily and efficiently. As a general rule, the energy required for compacting relatively impervious soils varies roughly as the square of the thickness of the layer. To yield the same compaction with the same equipment, a 6-inch layer requires about four times the number of passes with a roller that a 3-inch layer does.

Unless the soils are compacted to adequate depth with a load as heavy as or heavier than that which will use the pavement, be it street or runway surfacing, additional consolidation and resulting added settling will occur under traffic. Because of this, good construction practice dictates that very heavy rollers be used to compact the subgrade and base courses on runways for the 300,000-pound airplanes now being produced.

Studies of pavement failures and faulting at joints in recent years on heavy-duty pavements point to the need for greater compaction and stabilization of the subgrade.

California highway standards require that the subsoil and subgrade be highly compacted in not more than 4-inch layers to a depth of at least 3 feet below profile grade.

From an article in the *American Road Builders' Association Technical Bulletin No.* 109 by O. J. Porter, Consulting Engineer, Sacramento, Calif.



Showing locations of the alternator equipment under the hood of a Plymouth police car.

New Power Supply for Police Cars

By INSPECTOR FRANCIS A. BURNS
Superintendent of Telegraph
New York, N. Y.

DURING the last decade, the use of all types of electrical equipment on vehicles has increased considerably, both in number of accessories and amount of power consumed. Perhaps the largest single item from the power standpoint has been the use of communication systems on police cars, utility cars and trucks, and mobile-broadcast and public-address system trucks.

Mobile radio communication systems have increased in power outputs at very high frequencies, and the problem of supplying sufficient DC power for the complete operation of all electrical equipment on the vehicle has been serious for quite some time. Battery trouble and high electrical maintenance cost, coupled with mediocre vehicle and equipment operation, have been encountered by a large number of operators.

Half of almost any police car's time is spent standing still with the motor idling and the radio turned on. When a radio car's speedometer registers 100,000 miles for the year, it is likely that the motor has gone 200,000 miles.

An ordinary generator supplies 32 amperes at 6 volts. The 1946 cars have better equipment generators, supplying 38 amperes. A Link mobile transmitter and receiver draw 45 amperes, so that the battery must take some of the radio load, in addition to that of any other electrical devices of the vehicle.

The result may be excessive drain on the battery, which breaks down the battery. The high speed of the generator, if equipped with a small pulley for low engine-r.p.m. cut-in, causes overheating, which melts some of the lead in the commutator and throws out this lead against the casing of the generator. It is not unusual to have to replace generators in 5 to 12 months. If fitted with a large pulley, the generator does not cut in and shoulder its share of the load until the radio car attains a speed of 20 mph. Under these circumstances a battery lasts about six months.

New System Found

Alert to this situation, the New York City Police Department early in 1945 located a new type of DC power system. Produced by The Leece-Neville Company, Cleveland 14, Ohio, this system uses an alternator with rectified output and a voltage and current regulator to control the electrical system. The alternator is a three-phase variable frequency unit, externally excited by the car battery. It delivers or charges 30 amperes at engine-idle speed and full output, or 60 amperes, at 15 to 20 mph.

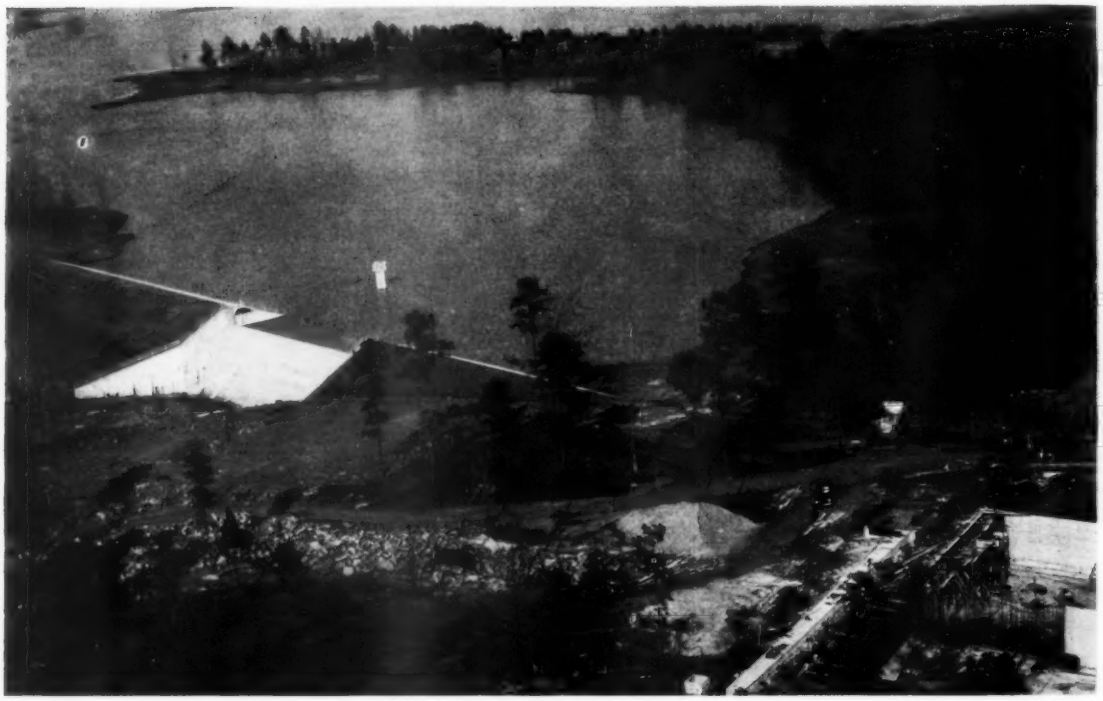
Before making any decision, the alternators were thoroughly tested by the police department under the supervision of Lieutenant Joseph McWeeney at the Control Motor Repair Shop. The test took eleven and one-half months, and three cars were used in the heavy midtown traffic areas. In all three cars the battery lasted through the test period. It was found that the alternator worked best with a new battery, and excellent results were obtained by using the large heavy duty Hand battery. Because police cars receive rough handling, rugged equipment is needed. More economical operation was attained by putting the new ammeter on the dashboard or steering post, instead of under the hood. This enabled the operator to see if the battery was charging or discharging.

As a result, the police department has installed alternators in Richmond and Queens motor patrol vehicles that are now equipped with two-way radio. As soon as possible, all police radio vehicles will be thus equipped, the next installation being in the radio cars of Brooklyn. The 700 police vehicles of all types include about 500 passenger cars equipped with two-way radio.

The alternator system can handle the car's entire connected electrical load under most operating conditions. Consequently, the battery will remain fully charged at all times. The fully charged battery will act as a reservoir to handle additional emergency electrical loads without reducing the efficiency of the car. This unit provides an excellent source of power for mobile radio equipment, special lighting, and other accessory loads. As further proof of this, one telephone company will not sell mobile telephone service unless an alternator or heavy-duty generator is installed.

A Tailored Water Supply

At Opelika, Ala., the city and one of its major industries complete a joint water improvement which benefits both parties.



A TYPE of "mutual aid"—a phrase used so much during the war—was tested in Opelika, Ala., recently, when an expansion of water supply resources became necessary. In an excellent spirit of cooperation, the city and one of its major industries combined forces to complete a joint water improvement tailored to the needs of each. The industry, one of the larger units of the Pepperell Mfg. Co. textile plants, is located two miles west of Opelika. Since its establishment it has obtained its water supply from the city.

As the city grew, however, the use of water also increased, rising to the point where the existing water supply was strained to its limit. Early in 1944, the city began investigations through its Engineers R. A. Polglaze and F. C. Basenberg of Birmingham, Ala., on how it could obtain a more abundant supply. Nearby Sougahatche creek was selected as the proposed source.

In the meantime, officials of the Pepperell Mfg. Co. decided that they would construct a bleachery in connection with its mill. The bleachery would require roughly 2½ mgd when first constructed and later would need between 4 and 4½ mgd. This volume far exceeded the amount available from the present water system and was greater than the requirements of the entire city.

In view of the overbalancing use of water and the vital interest which both the community and the company had in obtaining an adequate supply, the mill retained Robert and Co., Inc., Atlanta engineers, and the city called on the services of Polglaze and Basenberg, to investigate the adequacy of the supply selected and to determine whether a joint use of this supply was possible.

The study showed that the reservoir site, selected by the city's engineers, was convenient both to the plant and to the city — only 2½ miles from the former, and 3 miles from the latter. It was found that this site tapped a drainage area comprising 19 square miles, and a lake of 550 acres could be created.

The capacity of such a reservoir would be 1,581 million gallons with a 20-foot draw-down, or 1,208 million gallons with a 13-foot draw-down. This would yield an estimated 8 mgd. The city's eventual requirement was not expected to exceed 3½ mgd, and the company not more than 4½ mgd.

With this mutually decided, the city and the manufacturing company agreed to proceed jointly. The city constructed a dam and intake with a pumping station and a 3-mgd filter plant for its needs. The mill constructed a separate pumping station and a 2-mgd filter plant for the present mill demand. The city would pump water to its filter plant located near the dam, and the manufacturing company was to construct and operate its own facilities.

The dam constructed consists of a concrete-and-earth gravity section with a separate intake power providing a maximum 20-foot draw-down. The intake tower was connected to the pumping station with an 18-inch intake main. Two 10-inch lines serve the city pumping station, and one 14-inch line, both of cement lines U. S. Cast Iron pipe, serves the company's station.

The manufacturing plant's raw-water pumping station was so located that positive head would remain on the pump suction under all conditions. The company installed a set of Peerless pumps, one with 1,400-gpm capacity working against a 92-foot head, and another able to move 2,100 gpm against a 107-foot head. The building was designed to allow for additional pump capacity. These pumps are remotely

controlled from the filter plant, approximately 2½-miles distant, with the control line on the same poles as the power line that furnishes power for the pump operation.

This station pumps into 12,500 feet of 18-inch cement-lined cast-iron main designed to deliver the 4½ mgd eventually to be required by the mill. The difference in elevation between the station and the plant is only 80 feet.

The raw-water main discharges into a gravity flash mixer with horizontal baffles, where it receives alum with the dosage regulated by Omega feeders. The water goes from the flash mixer into two Link-Belt horizontal, mechanical, slow mixers constructed parallel to the flow. These mixers and basins are designed for the ultimate flow of 4½ mgd. The water from the mechanical mixers flows to a gravity settling basin with a center baffle for "around-the-end" flow. The basin now constructed will handle 2 mgd; however, dowels, joints, keyways, and other means have been left for the convenient addition of another 2,000,000 gallons per day. At present the single settling basin will serve adequately, since it can be cleaned on weekends and such times when the filter plant is not in operation.

The flow from the second basin goes to two rapid sand filters with an area of 360 square feet each. The filters are designed on the basis of two gallons per square foot per minute. The filter capacity also can be increased conveniently when the demand dictates.

The filters are equipped with Wheeler bottoms, and wash water is provided with a horizontal centrifugal pump taking suction from the clearwell. The filters have M. & H. Valve & Fittings Co. hydraulic valves, and Builders Iron Foundry controllers, and recording rate-of-flow and loss-of-head gages. The water leaving the plant is stabilized with soda ash; chlorine may be added before or after treatment.

The finished water is stored in a 1½-mg concrete clearwell. The filter plant is equipped with an adequate chemical laboratory, dry feeders, chlorinator, ammoniator, raw-water and finished-water meters, and other auxiliaries. Chemicals are stored on the third floor, and an elevator is provided for unloading them. The chemical machines are charged from hoppers extending to the third floor storage room.

The service pumps are located on the first floor of the filter plant and take suction from the clearwell. One-third of the clearwell is reserved for fire protection at the mill. Therefore, the service pumps take suction from the top two-thirds of the clearwell only. The service pumps consist of two 2,800-gpm electrically-driven pumps working against a 60-foot head; they discharge directly to the bleachery water system through approximately 2,000 feet of 18-inch main. A 500,000-gallon R. D. Cole Mfg. Co. standpipe is provided, floating on the line with sufficient head to supply pressures to the bleacher system.

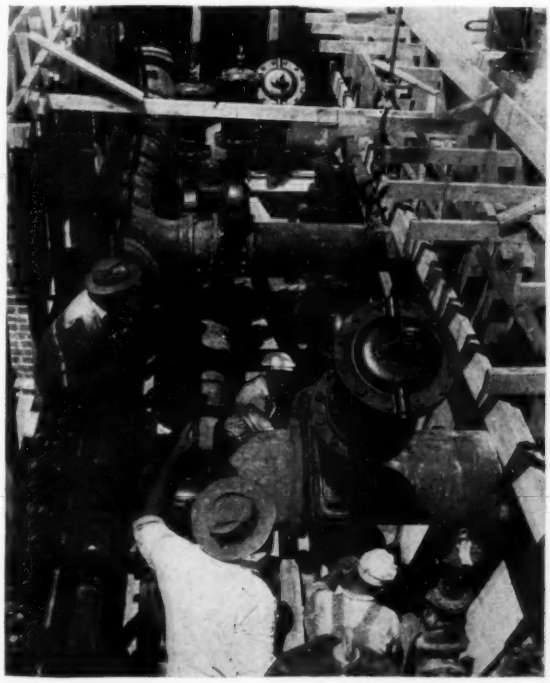
The fire protection pump that takes suction from the bottom third of the clearwell is in the bleachery power plant. A 16-inch suction main furnishes the bottom third of the water stored in the clearwell to this fire pump. The clearwell is at such an elevation that 5-psi pressure is provided on the suction side of the fire pump at all times.

The city's new filtration plant, with a 3-mgd capacity, is built of concrete and brick. It consists of duplicate coagulating basins, duplicate settling basins, and eight reinforced concrete gravity-type filters, and a large clearwell. Two one-and-one-half-million-gallon Pomona turbine type pumps deliver the water through an 18-inch supply line to the city. A million-gallon welded, radial, cone-bottom, elevated steel tank, erected by Chicago Bridge and Iron Co. and located in the city, floats on this line. The supply line consists of 6,700 feet of Class 150 and 9,400 feet of Class 200 Super-deLavaud bell-and-spigot pipe.

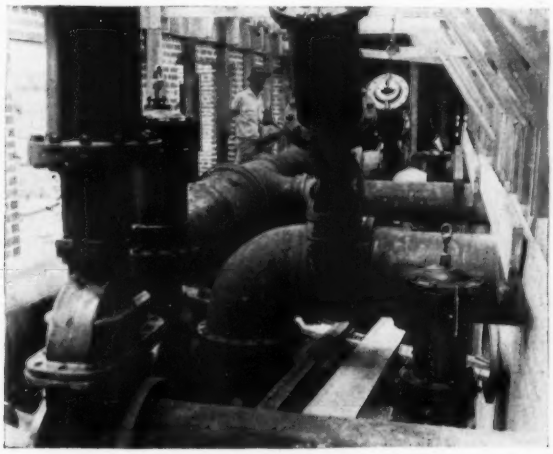
Connecting the elevated storage tank and the distribution system, new 16-inch, 12-inch, and 10-inch cast-iron mains were installed. The city further reinforced its distribution system by installing 30,000 feet of 6- to 10-inch cast-iron pipe in addition to the supply line.

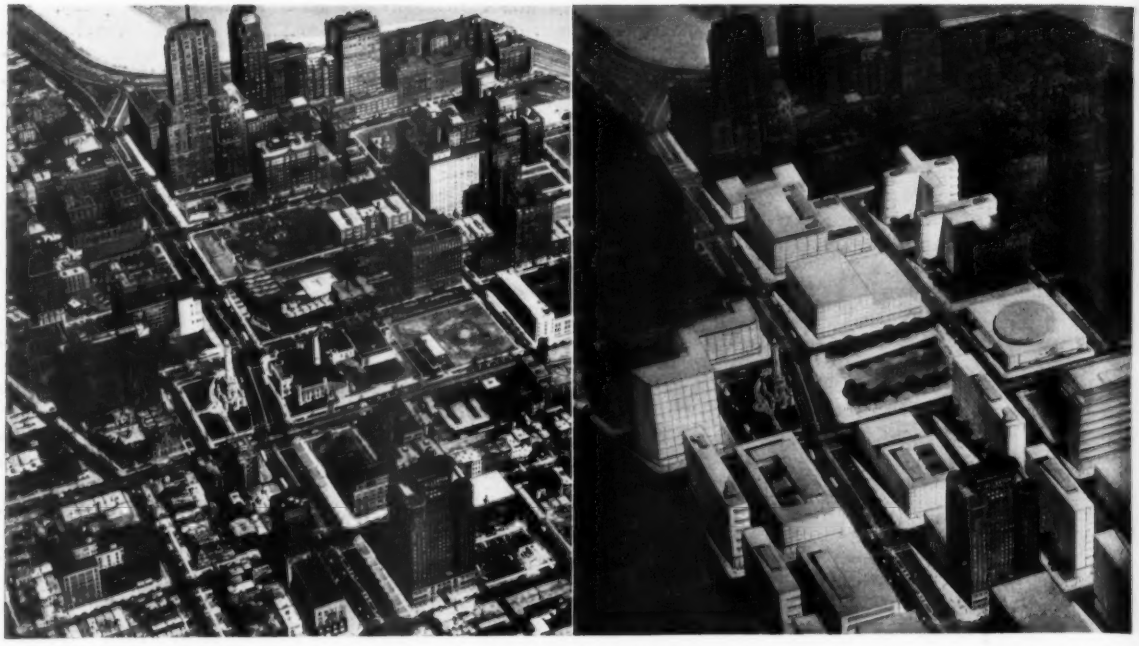
The elevated tank was equipped with cathodic protection for rust prevention, which was installed by the Rusta Restor Division of Johnston Jennings Co., Cleveland, Ohio.

Thus, cooperatively, the city and the manufacturer have solved their water supply problems. The city now has a supply adequate for its purposes, and, at the same time, it furnishes a supply of untreated water that the plant can pump and treat to meet its own requirements for water excellence.



The new dam (above, left) that supplies both Opelika and her large water-using industry. Valves and fittings go in as part of the city's water improvement program (left). Below: A view of Opelika's pipe gallery.





Left: Upper Michigan Avenue today and (right) plans for the redevelopment of a section of that thoroughfare, looking southward. Below: the projected "magnificent mile," looking northward from the Allerton hotel to the Palmolive Bldg.

A $200,000,000 Avenue for Chicago

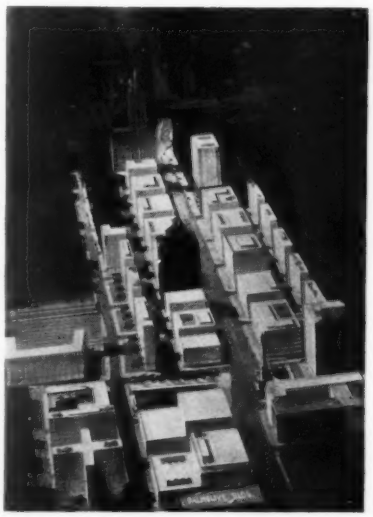
PLANS for the development of North Michigan Avenue, Chicago, into a completely modern business thoroughfare under a $200,000,000 building program were announced last month by Arthur Rubloff, head of a Chicago real estate firm. More than $25,000,000 in private capital is reported to have been committed to the project, and the Rubloff firm now controls approximately six blocks of frontage on the Avenue.

Under the proposal, store and office buildings about seven stories in height will be constructed fronting the Avenue. At the rear of these stores, cutting through the center of the block and paralleling the avenue, are to be landscaped shopping promenades. Inaccessible by auto, these long, attractive plazas would provide much additional store frontage. The plan of lining the avenue with lower buildings, wit htaller office and apartment structures immediately behind, will make for a spacious arrangement and permit plenty of sunlight and air throughout the area. It will avoid the "canyon" type of street appearance which today plagues the downtown areas of all big cities.

Another highlight of the plan is an esplanade and hall of music, suggested as a civic development on Chicago Avenue between the water tower and the armory. An area adjacent to such an auditorium would be devoted to a park with a skating rink, fountains, walks, benches, and landscaping.

Emphasis on Parking

Considerable emphasis and attention are being given to the automobile parking problem. Shops, hotels, office, and apartment buildings will be urged to include parking facilities in their building plans. A plan is also being proposed to city officials by which the city would build a two-level underground garage at the intersection of Chicago and Michigan Avenues, to house 1,500 cars, and a two-level garage, containing some 3,000-car stalls, under the Lake Shore playground. It is expected that transient traffic would use the space during the day, and that permanent residents of the area would make use of the garage facilities at night.



While the projects suggested to the city entail the expenditure of millions of dollars in public funds, it is pointed out that the money must be spent for the improvements if Chicago is to maintain its place as a leading city.

The real estate firm of Webb & Knapp of New York, which assembled the site in that city on which the United Nations headquarters is to be constructed, is one of the chief sponsors of the Upper Michigan Avenue development and expects to build on several of the fronting properties.

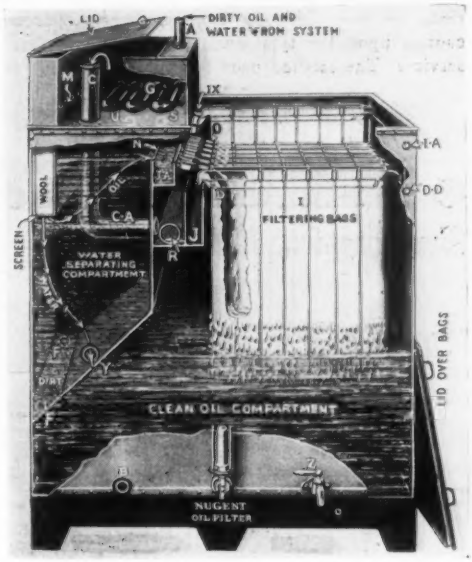
Both Saks Fifth Avenue and Bonwit Teller of New York, nationally known retailers of apparel for women, are reported to have purchased property in the Chicago development area and to have plans for buildings, containing their own parking facilities, which will cost approximately $8,000,000.

Oil Purification and Filtration

I. Gravity Purification of Lubricating Oil*

By BRIAN CORRIGAN
Technical and Research Division
The Texas Company
New York 17, N. Y.

EXTENDING the useful life of lubricating oil has been and continues to be an important part of good equipment maintenance. While methods of oil purification and filtration will assist in prolonging the useful life of lubricating oil, a more important requirement is proper application of the right type of lubricating oil to a given piece of equipment. Supplementing this, and equally significant, is the necessity for operating and maintaining equipment in accordance with the instructions issued by the manufacturer. If the right type of lubricating oil is applied to properly operated and maintained equipment, the oil will give a satisfactory performance for relatively long periods of service before replacement of the oil is desirable.



Details of the Nugent Oil Filter showing relative location of component parts and direction of oil flow. Oil and water enter the top compartment, pass over a heater, then into the air extractor and filtering wool, and into the water separating chamber. There it rises until it falls over the skimming weir, thence through drip valves into the filtering bags. The outlet at the bottom left is for the clean oil; above and a trifle to the left is the water outlet. the sediment settles to the V-shaped bottom.

Characteristics of Used Oils

Used oils are characterized by one or more of the following conditions:

1. Oil which has deteriorated because of oxidation in the presence of air or other oxygen-containing media, and which has undergone high-temperature service. Products of oxidation may be soluble or insoluble in the used oil, depending upon the degree of deterioration.

2. Oil which has deteriorated due to polymerization (linkage of unsaturated oil molecules to form progressively heavier molecules, causing oil thickening), a result of high- as well as normal-temperature service. Products of polymerization may be soluble or insoluble in the used oil.

3. Oil which has been contaminated with extraneous matter. Products of contamination:

   a. Dirt and dust common to the region in which equipment operates.
   b. Core sand that has remained in metal castings from the time they were formed in the foundry.
   c. Metal particles which have remained from the time the equipment was in the machine or repair shop.
   d. Metal particles due to disintegration or wearing of parts such as bearings, piston rings, etc.
   e. Carbon and other products of partial decomposition or oxidation, resulting from destruction of oil or incomplete combustion of fuel.
   f. Water and anti-freeze.
   g. Dilution with fuels.
   h. Miscellaneous, such as paint, asbestos, linseed oil, etc.

If used oils are to be continued in service, the products of oxidation, polymerization, and any foreign particles should be removed.

The simplest means of effecting some degree of used-oil purification is to let the oil rest in a settling tank for a period of time. During this time, and depending on the temperature and efficiency of settling and decanting facilities, it is generally possible to remove most of the suspended insoluble oxidized material, foreign particles, dirt, and water. Separation of such material is made by gravity alone, and it is adversely affected if stable emulsions exist.

Settling is most effective in horizontal tanks with vee-shaped or sloped bottoms and which have either jacketed walls or steam coils for heating the oil to the proper temperature. Depending on oil viscosity, best results are obtained at oil temperatures of 120° to 160° F. Obviously, excessive temperatures should be avoided to prevent the acceleration of oil oxidation. It should be noted that practically no settling will occur while the oil is being heated because of the convection currents created. Settling at low temperatures also should be avoided because the rate of separation is slowed up, owing to the higher viscosity of the oil.

Disadvantages of purifying oil by settling and decantation are as follows (assuming that the equipment for which the oil is required has to operate continuously):

1. Two complete batches of oil are required.
2. It is generally necessary to stop the machine to change the oil.
3. Considerable space is required for settling tanks.
4. Usually, at least ten days are necessary for satisfactory clarification.
5. While oil is in service, impurities are not removed as they collect; they are permitted to build up to some predetermined concentration, at which time the batch is withdrawn and purified.
6. Purification is not complete. Those insolubles which are close in gravity to that of the oil cannot be removed by this process.

Purification by this method is adaptable to all straight mineral oils such as those used for lubricating diesel and gas engines, air and refrigerating compressors, and steam turbines and general plant equipment. It is important to realize that oils so handled are only partially clarified. They may still contain soluble oxidation and polymerization products as well as amounts of fuel dilution, depending on the type of service involved. Future use of purified oil will depend mainly on the length of service the oils have already undergone and the extent of oxidation and dilution. Heavy-duty, additive-type oils cannot be purified by this method with any degree of success because of their disper-

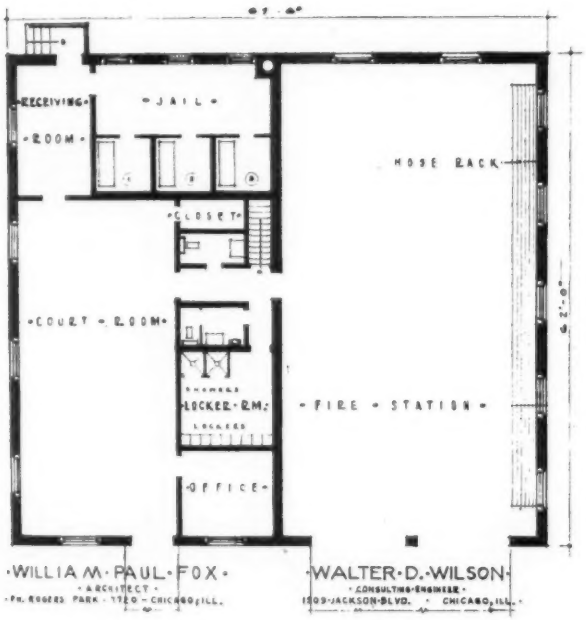
* This is the first of three articles by Mr. Corrigan. The June and July installments will discuss treatment by centrifuging and lubricating oil filtration.

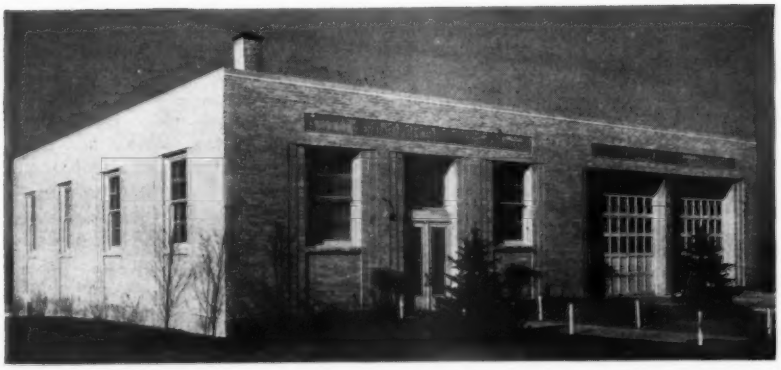
sion characteristic. This property prevents agglomeration of insoluble contaminants, with the result that settling of these materials is all but impossible.

Even though lubricating oil is given good treatment through proper operation and maintenance of equipment, it, nevertheless, deteriorates and/or becomes contaminated after extended periods of use. This is dependent, of course, upon the type and severity of service. The method used for purification, filtration, or reclamation of the used oil, and the question of whether this should be done during operation or after removal of the oil from the system, require individual consideration, since obviously the cost of oil-life extension must not exceed the value of the equivalent amount of new oil. The following discussion is presented to assist the operator of equipment to evaluate better his own particular problems of lubrication.

(To be continued in the June issue)

Combined Police and Fire Station, Summit, Ill.





This excellent example of a departmental building for a small community was constructed under the Lanham Act program of the Federal Works Agency. The architect was William Paul Fox of Chicago, Ill. Leo F. Kennedy is President of the Summit Village Board.

Neighborhood Health Units

EIGHT public health units, designed to provide medical care for low-income families, are now serving tenants of Dallas, Texas, housing projects, according to the National Association of Housing Officials.

The medical care units are quartered in the housing projects and are sponsored jointly by the local housing authority and the city health department. Since public housing and public health are intended to serve nearly the same income groups, the units give service where it is needed most.

In reporting on this activity, the Association explains that the Housing Authority provides not only space for public health classes, clinics, and child health conferences, but furnishes utilities and permanent equipment without cost to the health department. The latter agency provides portable equipment and medical supplies.

Health department nurses and Housing Authority home-counselors cooperate in teaching courses in food budgets and preparation, prenatal and infant care, sewing, and other subjects. Group demonstrations held in project health centers have been well attended.

The cooperative plan also provides "well child" conferences, a special service for housing tenants and other low-income families. Mothers bring their infants and young children to the conferences on scheduled appointment for regular medical examinations and discussion of child-care problems.

Recreation Salary Increases

THE median salary for recreation executives in 1946 was approximately $1,000 higher in all population groups than it was ten years ago, the National Recreation Association reports. The median salary for executive positions filled by the Association last year was $3,600.

Although salary ranges fluctuated, the median salaries by population grouping for some 309 recreation executives were as follows:

Under 50,000	$3,466
50,000-100,000	4,000
100,000-250,000	4,400
250,000-500,000	5,200
Over 500,000	6,000

In the cities appointing executives for the first time, the median salaries were as high as they were in the cities making replacements. Of the executive positions listed with the Association and where appointments were made in both new and old cities, 87.1% were in communities of 50,000 or less; 79.2% were in communities of 25,000 or less, and 42.5% were in places of 10,000 or less.

They Builded Better Than They Knew

Julius Henry Cohen's book tells of outstanding persons, events, and achievements in a half-century of struggle for higher standards of municipal administration in New York.

By MURRAY SEASONGOOD
Former Mayor, Cincinnati, Ohio
Past President, National Municipal League

THIS is the autobiography* of a New York lawyer who, for over fifty years, has devoted himself to the public interest. His activities, other than legal, have been in politics, with emphasis on state and local government, economics, the fine arts, ethics, religion, and business. Mr. Cohen's work in these fields has been vigorous, sustained, intelligent, unselfish—and often successful. Nor has Mr. Cohen abated his efforts since reaching an age beyond three score and ten. As just one instance, this year he is a member of the Special Committee on Civil Service of the American Bar Association.

In detailing accomplishments of the past fifty years, the author turns an interesting light on some of the actors in dramatic and epochal occurrences. The accounts of persons and events are keenly and often sympathetically recorded. Under the auspices of the "Committee on Streets of the Women's Municipal League" of which Mrs. Cohen was chairman for more than fifteen years, she assisted in trying to make New York a clean city; she also helped in the development of playgrounds, and assisted unfortunates on Welfare Island. The achievements were the more remarkable considering women did not then have the vote. Mr. Cohen's recital of some of the works of his wife (particularly in Chapter 12, Book III, under the heading, "I.S.C."), of the late Rosalie Loew Whitney (Chapter 12, *id.*), and of Belle L. Moskowitz (Chapter 22, Book V) including what that remarkable woman did as an adviser to Governor Alfred Smith, are gracious and charming.

The late Travis H. Whitney, Civil Works Administrator, lawyer, New York Public Service Commissioner and, through the Citizens Union, the Albany "People's Lobby" (p. 112), was a classmate and dear friend of mine, instrumental in my having my first law experience, while we were still at law school, in the New York Legal Aid Society, under the inspiring tutelage of his wife-to-be, then Rosalie Loew. I can easily deduce, knowing how just is Mr. Cohen's portrayal of this splendid couple and of other friends limned, that most of those sketched are fairly depicted; although Chapter 9 in Book II on Theodore Roosevelt (one of my heroes) starts with the quotation from Lowell's Biglow Papers (p. 73):

> "A ginooine statesman should be on his guard,
> Ef he *must* hev beliefs, not to b'lieve 'em tu hard."

and is pejorative of the methods T. R. used to become governor of New York.

The author's admiration for the late William M. Ivins, once candidate for Mayor of New York (Chapter 10, Book II), leads Mr. Cohen to become rather partisan even in favor of Mr. Ivins's client, the late William Barnes, in the suit for libel for $60,000 which Barnes brought against the former President, Theodore Roosevelt, and lost in 1915. The Colonel's supposed libel charged a corrupt political alliance between the Republican and Democratic bosses, Barnes and Murphy, and that Barnes worked through a corrupt alliance between crooked business and crooked politics. Mr. Cohen seems to think Mr. Ivins won the case, although the verdict of the jury was for Colonel Roosevelt. But, since the author was at one time assigned to investigating election frauds for the Citizens Union and worked with and for Ivins in this and other matters, and feels (p. 348) Ivins was "really the father of charter revision for New York City", his loyalty and homage to his former chief are proper and not too great.

It is impossible here to elaborate upon, or more than merely mention, one of Mr. Cohen's most valuable contributions to his own and succeeding generations—the deevlopment of the Port of New York Authority. As its general counsel from the time of its inception for more than twenty years, he gave his legal assistance in preventing income from its bonds being held taxable under existing federal law.

Mr. Cohen begins with local politics as far back as when his father was captain of an election district (p. 111) and handed out, among other things, for use in voting, ballots printed by his party, before the days of the Australian ballot. He tells (p. 12) how the Citizens Union was organized in 1897 and worked for good state legislation and a home-rule amendment giving the City of New York freedom to manage its own affairs. Mr. Cohen was chairman of its Legislative Committee from 1902 to 1913 and, with a devoted group of able colleagues, each week went over, appraised, and publicized conclusions on all legislation affecting the city. Mr. Cohen was admitted to the bar in 1897 and two years later became associated with Horace E. Deming, a great exponent of municipal home rule, Chairman of the Executive Committee of the National Municipal League, and author of the outstanding work, "Government of American Cities". Mr. Cohen, in the Citizens Union, was active in the New York municipal campaigns and in the thrilling candidacies of William Travers Jerome for the office of District Attorney. He supported him in cleaning the Augean stables of vileness, indecency, fraud, and corruption during his champion's eight years in that office (p. 65).

William L. Strong, mayor of New York in 1895, should be remembered gratefully for much he did that Mr. Cohen recalls; for example, that he appointed Col. Waring head of the Street Cleaning Department and Theodore Roosevelt as Police Commissioner (p. 138). Waring's "White Wings" (street cleaners in white suits) were an early, wonderful demonstration that menial jobs, municipal or otherwise, may be made dignified and efficient.

That Mr. Cohen has found it necessary to content himself with praise by praiseworthy men, but with no honorary degree, (pp. 305-6), should not disturb him, if he will but reflect that for great achievements there is, as is told in the threnody of Pericles, "a home in the minds of men . . . to stir to speech or action as the occasion comes by" and, also, that their story. . . "lives on far away without visible symbol, woven into the stuff of other men's lives."

**They Builded Better Than They Knew.* By Julius Henry Cohen. Julian Messner, Inc., 8 West 40th St., New York 18, N. Y. 1946. 376 pp. $3.75

The City Tells Its Story

By HENRY DAVIS NADIG
Director of Public Relations, Regional Plan Association

Continuous Performance Is a Must

YOUR city tells its story best if it tells it continuously. Not only yearly, but monthly, weekly, and even daily. Because the job of keeping the public well informed is a constant one.

As I was about to say last time, when our patient printer pied a line of type (and thereby made me feel very much at home!): *public relations is the conscious way, the know-how approach.*

This is a fact to which up-and-coming cities are becoming more alert, and a truth that your city can't neglect if it wishes to progress and to hold its own in the shape of community things to come. Today, the need is for something more than the required annual report—however well presented a document it may be.

Your municipal story must be told over and over again, in as many different and intriguing ways as you can devise. The public has got to become interested; you can't arouse any lasting interest in people unless you put them in the know.

But—

You say that you are doing this constantly, that City Hall is covered daily by newspaper men who report the executive, legislative, and administrative activities and thus keep the public informed. You say that the Mayor, the City Manager, the department heads, and other officials frequently appear before various civic organizations to explain the progress of their work.

Also you point out that a good many radio speeches are being made. You add that there are innumerable other ways in which the message of your official city is being carried to the people. You believe that, as far as your own city is concerned, it is forever being well talked about within its own boundaries as well as outside them.

You guess your city's public relations is going along all right. Why worry about it? You have all you can do with your own official tasks!

But while we're talking here—and as long as you're satisfied that your own particular department, and your official municipality as a whole is also well taken care of public relations-wise—you won't mind answering a few easy questions? Good! Try these ten tests:

1. Are your city government and its departmental units making sure they *have* a story to tell?

2. Is your city business an open book to the press and so getting thorough coverage? And are your municipal departments and the programs of your various commissions treated frequently in newspaper feature articles?

3. Does your city put out its own lively magazine covering executive, legislative, and administrative acts, playing up city progress, enlightening the public, boosting city employes' morale and relating the city to state and national trends?

4. Do your several municipal departments, wherever practical, produce periodicals, brochures, folders, or leaflets to tell their specific story?

5. Are your city fathers and department heads giving public addresses that arouse interest, carry conviction, and gain friends, and do your municipal employes have an *esprit de corps* that makes their word-of-mouth an asset to City Hall?

6. Does your city government go into the schools regularly as a part of the curricula?

7. Has your city government rallied live-wire civic organizations *behind* its plans and projects?

8. Do your municipal departments fully utilize the facilities of national associations in their specific fields?

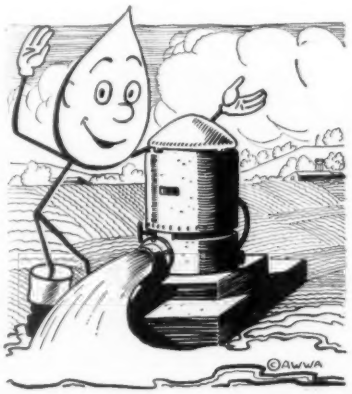
9. Are your city government and its departments making the best possible use of the radio, film, and exhibition media?

10. Has your municipality established a public relations department to execute and administer the whole telling of your city's story?

Municipal Phi Bete

There you have the prerequisites for a municipal Phi Beta Kappa in the College of Community Promotion! Yet how plain and simple they are! Meet every one of those requirements and acquire the many other related criteria on the way—and the key is yours.

Not until then, however, can you think about putting your thumbs in your galluses and flapping your fingers on your chest! But actually, you won't want to be running around chest-thumping and back-slapping if you've got to the head of the class: because you'll be searching your mind for new techniques lest somebody else step up and take the lead.



Meet Willing Water, energetic elf of the American Water Works Association.

Now, Wait—

I heard what you said: it's too ambitious, too costly, and way beyond reason to expect even a large city to make our municipal public relations Phi Bete.

But look: some cities right now are almost, if not wholly, making the grade. By sheer initiative and drive, by imagination and realism, by stock-taking and by getting a people's-eye-view, they've been checking off a lot of fundamentals; they've graduated into our figurative college, and they've passed most of the finals.

It's been hard going now and then—against the odds of prejudice, unrealism, and lack of knowledge; and they've had to teach themselves many times, these cities, and to resort to tutors. But they're showing some interesting results, a growing know-how and a gathering public interest. Your city can do the same—and profit by others' experience—if it hasn't already.

Toledo, Ohio, has a Commission of Publicity and Efficiency (Point 10), which sometime later I hope to be able to discuss in detail, and this official arm of the city government issues a weekly magazine (Point 3). It's the official publication of the city—and it's far more than just a report of council proceedings and official business (which it does contain): it's the printed voice of a modern city with all its hopes and ambitions, its alertness and its problems.

I've been looking over several recent copies of *The Toledo City Journal*, and if I were a resident of that city I'd certainly want the *Journal* coming into my home every week. We can take it for granted that one of the chief objectives of the Commission is to get the magazine eventually into all Toledo homes.

In Rochester, N. Y., the Division of Public Relations, Department of Commerce, publishes a monthly, *The Rochester Municipal Journal*, sub-titled "The Public Employees' Newspaper" (Point 4). This would seem to exist primarily for the city's official personnel itself; yet it has much material of interest to all Rochester folks. (If the Division handled all city government public relations, it could qualify for Point 10.)

Printed in tabloid style, the Rochester *Journal's* 11-by-15-inch size lends itself well to full-page articles on city departments, such as that shown here featuring public works. The back page of the six-page issue before me is devoted entirely to personals on city employes.

The Cleveland, Ohio, City Planning Commission's 5¼-by-8½-inch single-sheet leaflets periodically tell a clear-cut, graphic story to all Clevelanders (Point 4). In Cleveland, you can't help but know what the City Planning Commission is up to.

The leaflet may be a far cry from detailed planning reports and studies which the Commission produces as part of the planning process. But it is meant to be—and use of this technique shows some smart know-how.

As a departmental brochure (Point 4 again), the Cambridge, Mass., Planning Board's published analysis of municipal recreation facilities, *Recreation in Cambridge*, is an outstanding example of startling fact depicted with such graphic excellence and such photographic completeness as to make the briefly detailed facts fairly shout for official action to answer a crying need.

That little point-headed fellow in the picture on the preceding page has to do with Point 8. He's "Willing Water," a cartoon creature conceived by the American Water Works Association to help public works departments dramatize the importance of water.

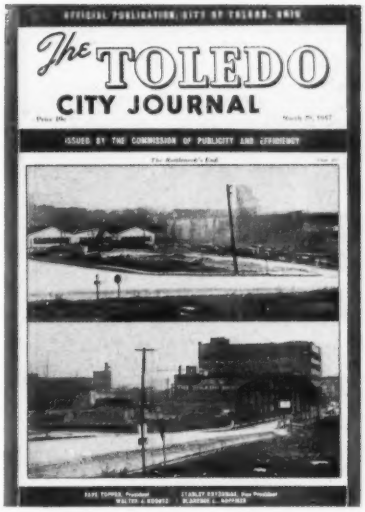
If your official water works unit has not become acquainted with "Willing Water," it might be something to look into. The AWWA is an example of the type of national association from which much may be learned and gained for your departmental public relations.

This is all very well for the big city, you say; perhaps those simple questions can be effectively answered there. But what about the small town? How far can places of just a few thousand go in accomplishing what you call real public relations, you ask, thinking about Point 10.

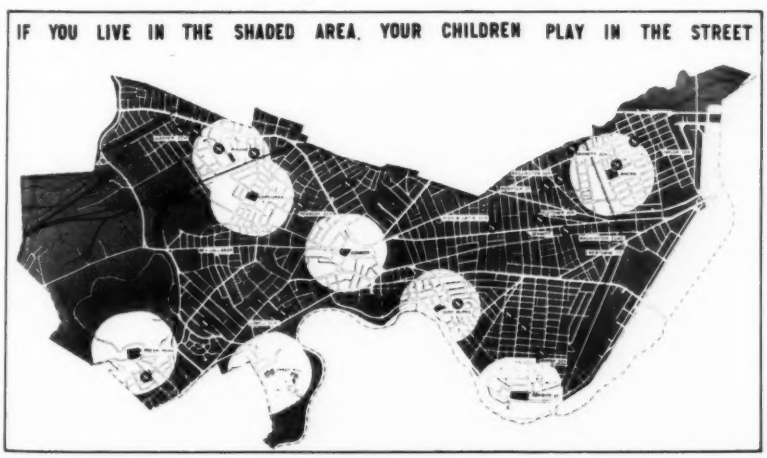
They *can* go far and they're beginning to do it where current pressures of parking and traffic, housing and zoning, highways and subdivisions are demanding action.

Take one of the toughest points for the small municipality—No. 10. In the big league, Toledo and Rochester seem nearly, if not entirely, to have answered this.

But little River Edge, N. J., (pop. 3,287) is not to be wholly outsmarted: it's the first municipality in Bergen County to employ professionals to keep the public in the know about its local government. The borough earmarked $1,200 in the 1947 budget, adopted February 24, to hire a public relations firm to carry out a program developed by the borough fathers. That is real progress.



A new bridge and elimination of a traffic bottleneck at the site are shown (top right) on the cover of the March 29 Toledo City Journal. Water supply is well stressed in a whole page (center right) of the February Rochester Municipal Journal. By way of this leaflet (lower right), Your City—Tomorrow, Clevelanders get a planners'-eye view of what the Cleveland City Planning Commission accomplished in 1946. If you live in Cambridge, Mass., the Planning Board brochure, Recreation in Cambridge, will tell you (below) whether your children are provided with play space. (Note Points 3, 4, 9, 10.)



No More Floods for Louisville

Many other cities follow her lead in a drive to keep the Ohio River within its boundaries.

Mayor E. Leland Taylor, Colonel B. B. Talley, Brigadier General D. L. Weart, and K. P. Vinsel, Executive Director of the Louisville Area Development Association, officiate at ceremonies marking the beginning of the Louisville floodwall.

AFTER more than ten years of planning, ground has finally been broken for the construction of a floodwall to protect Louisville, Ky., from future Ohio River floods. Public demand for flood protection in Louisville followed the disastrous 1937 flood, which caused damage amounting to more than $52,000,000 and affected the homes of some 200,000 people.

Throughout the recent planning and negotiation stages, the Louisville Area Development Association has served as a clearing house for local officials, groups of interested citizens, industries which had problems in connection with the wall, and the U. S. Engineers, responsible for design and construction.

Now that Louisville's floodwall has been started, many other cities and smaller towns up and down the 938-mile stretch of the Ohio River are spurring their own projects for anti-flood protection. One of the main desires of municipal leaders is to retain the industries and factories which were constructed during the war and post-war boom periods, and which were often located in potential flood areas. Municipalities are given assistance through the Flood Control Act, which provides that the Federal Government will pay the construction costs for flood protection works, while the localities are required to purchase the rights-of-way and pay their operation.

Louisville was one of the first cities to be given consideration under this act in 1938. Although there was considerable controversy, a city bond issue of $2,500,000 to acquire the rights-of-way was authorized by the voters in 1940. Before the bonds could be sold, however, the federal funds appropriated for the project were withdrawn because of the national defense program. The plans were shelved during the war and the floodwall was forgotten.

Issue Revived in 1941

In 1941, the newly formed Louisville Area Development Association revived the issue and appointed a committee to study the problem. Interest in flood protection had subsided by then, and many of Louisville's citizens were not convinced of the value of a floodwall.

The Committee on Flood Protection, headed by Mr. A. H. Dick, unanimously approved construction of the floodwall in January 1945, although members had been divided in opinion at the start. The report was approved by the Association's Board of Directors, and they urged city officials to push the project as rapidly as possible. One revision in the plans made by the Committee provided for extending the area to be protected by the floodwall to a large industrial section which had grown up during the war in the county outside the city. State legislation permitting county participation in the project was enacted in 1946.

Louisville's second highest flood on record occurred less than a month after the 1945 Committee report. In March of that year, the Board of Aldermen authorized the sale of a $1,500,000 bond issue, and purchase of rights-of-way was begun. The floodwall seemed assured of early construction.

In the meantime, difficulties arose over the federal funds which had been withdrawn during the war. After several delays, the congressional appropriation was received in the summer of 1946, and bids were ready to be let when a temporary restraining order on all federal public works projects again postponed construction.

Finally, last December the funds to start the project were released, and bids were let some weeks later, only to be rejected because they exceeded estimates. Bids were let again early in March and this time were accepted. The construction schedule calls for completion of the floodwall, which is ultimately expected to cost more than $20,000,000, in 1950. The city's sewer system has also been redesigned to tie in with the flood protection works.

It is expected that the floodwall will help to stabilize property values in the parts of town subject to flood damage, and that the city will realize additional tax revenues from this property. It will undoubtedly open up property for development which until now has been avoided because it is below flood level.

Floodwall Interest Spreads

The Louisville project has increased public demand for floodwalls over an area covering Kentucky, Indiana, and Illinois.

On the Indiana side of the Ohio River, post-war New Albany, just across from Louisville, also is booming. There are perhaps 10,000 more inhabitants now than the 25,414 tabulated in the 1940 census. In the past, floods have struck at New Albany with as great damage proportionally as at Louisville. The New Albany Flood Control Commission, headed by Mayor J. Irvin Streepy, has approved project plans that will cost approximately $6,000,000 to complete, and has applied for federal funds.

Another promising measure on the flood control scene is a bill enacted during the 1947 Indiana state legislative session which enables local governments to join in the formation of conservancy districts (several counties working together) to assist state, federal, and local authorities, in planning to hold back flood waters. Flood control and floodwalls have, therefore, become "must" subjects for municipal discussion in all of Indiana's river counties.

At Evansville, industrial and municipal interests have not yet agreed with the U. S. Engineers concerning a proposed levee route and the type of unified river protection to be employed. An $11,000,000 levee plan was started after the 1937 flood and partly completed, but it was delayed and postponed by the war. Some opposition now arises because under the present plan much valuable industrial property would be outside of the wall. There is also reluctance on the part of industrial firms in approving a flood stockade which may change the Evansville waterfront, because these firms are beginning to employ Diesel-powered river

barges for the transport of goods to the South and Southwest. Because of political issues involved, it is expected that a decision will not be made until the November municipal elections are over.

Flood in 1945 Showed Up Needs

In two badly flood-ravaged river areas of Southern Indiana—at Lawrenceburg and Aurora (both opposite Cincinnati, Ohio), and at Cannelton and Tell City farther downstream, the 1945 flood showed most vividly the value and need of flood protection works.

Pictures of the two Hoosier areas made during the 1945 flood threat are demonstrating to flood control commissions the security which can be offered by a flood wall in contrast to the damage and suffering that may be endured when civic leaders cannot make up their minds, or when they decide that taxpayers are unable to foot the bill for the floodwall rights-of-way.

After the 1937 flood, Lawrenceburg residents readily agreed to the provisions necessary for flood protection, and the barrier was promptly constructed. In Aurora, on the other hand, it was temporarily decided that flood protection could wait. Merchants, landowners and others, whose interests were involved and who had to yield areas for the floodwall rights-of-way, could not agree on the project.

In February and March of 1945, Lawrenceburg was secure from the flood for the first time in its history, while 80% of the Aurora business district was inundated. It was only after owners of Aurora industries talked of pulling up stakes that an agreement was reached. A floodwall costing $1,600,000 is being constructed, and the city is contributing $300,000 for the rights-of-way.

Flood Tale of Two Cities

Tell City, Ind., a woodworking center of more than 6,000 population, was another municipality which found itself protected behind its floodwall in 1945 when the Ohio River rose to its second highest crest in 113 years. Four miles up the river, however, at Cannelton, all industries were put out of operation, the electric current repeatedly broke down, 25% of the town's residents moved to higher ground, and flood perils of one kind or another lingered for more than a fortnight. Newspaper editors of the area spoke of the situation at Cannelton and Tell City as "The Flood Tale of Two Cities."

Combined losses in the two small industrial cities as a result of the 1937 flood had exceeded $2,000,000. In 1940, the U. S. Engineers urged the two Perry County river towns to act together and save money by building their floodwalls at the same time. Tell City quickly floated a $200,000 bond issue to pay for rights-of-way, and the Tell City Chamber of Commerce persuaded property owners to sell their rights at reasonable figures. The project was completed in August 1941, at a construction cost to the Federal government of $900,000. Exactly the same initiatory steps were taken at Cannelton, but groups wrangled incessantly over routes, no agreement could be reached, and the plans were pigeonholed. The city's flood toll in 1945, needless to say, exceeded by many times the minor losses that might have accrued to individuals and firms through the sacrifice of their property for a floodwall district.

Two of Cannelton's largest industries then announced that post-war expansion was impossible unless the city was given floodwall protection. But it was not possible to move the interests antagonistic to the floodwall even in the face of flood dangers and possible industrial stagnation. Opposition faded only after another major Cannelton industry, whose furniture plants had been destroyed by fire in 1946, announced that it would not think of rebuilding its plants in Cannelton unless it could enjoy adequate protection from flood and fire. Flood control plans finally were pushed through. The floodwall contract has been let, and a corps of the U. S. Engineers is now on the job.

Other Projects

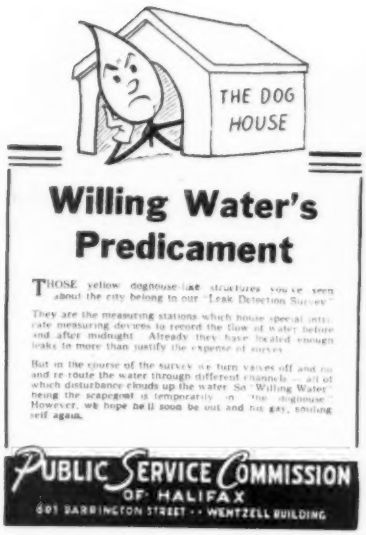
Some other Indiana municipalities where the subject of floodwalls and flood control is getting special attention include Grandview, where businessmen at this flood-blighted little municipality have organized and invited engineering plans, and Rockport, where a program to clean up Rockyside Park, along the river road, grew into a move to have the city protect itself from future floods. Projects are under consideration also at Rising Sun, Vevay, Madison, Mauckport, Jeffersonville, Warrick, and Mt. Vernon.

Still other Ohio River projects are under way at Cincinnati, Ohio, at Newport and Paducah, Ky., and downriver at Golconda, Brookport, and Mount City, Ill.

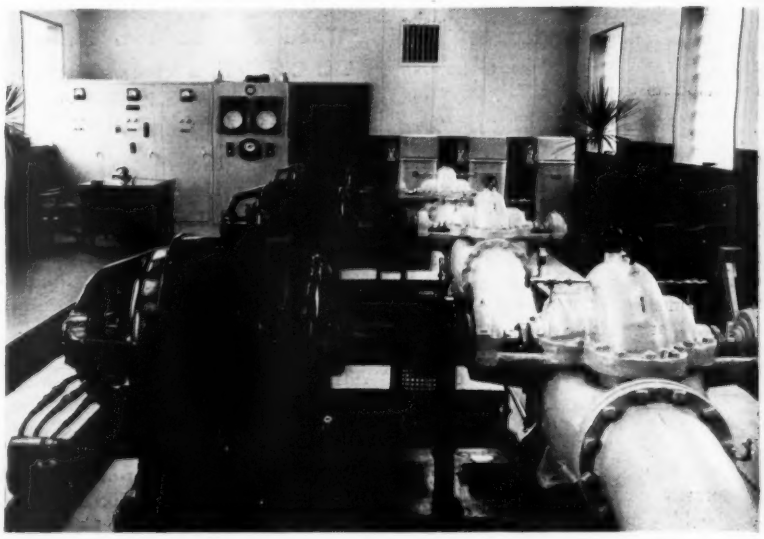
During the flood of 1945, Cannelton, Ind., was half under water. Tell City, four miles up the river, rested secure behind the floodwall that was completed in 1941.

Halifax Learns About Water Waste

. . . and uncovers a nearly $50,000 annual loss while stepping up the general efficiency of the system.


THE DOG HOUSE
Willing Water's Predicament
THOSE yellow dogHouse-like structures you've seen about the city belong to our "Leak Detection Survey."
They are the measuring stations which house special intricate measuring devices to record the flow of water before and after midnight. Already they have located enough leaks to more than justify the expense of survey.
But in the course of the survey we turn valves off and on and re-route the water through different channels — all of which disturbance clouds up the water. So "Willing Water," being the scapegoat is temporarily in "the doghouse." However, we hope he'll soon be out and his gay, sparkling self again.
PUBLIC SERVICE COMMISSION OF HALIFAX
601 BARRINGTON STREET • • WENTZELL BUILDING

A sample of the public relations work in Halifax during the water waste survey.



An interior view of the Dutch Village booster station, showing motors, pumps, the electrical panel, the Bailey meter panel, and the cam switches.

IN recent years the use of water in Halifax, N. S., apparently had been growing, although the revenue did not reflect a proportionate increase. Furthermore, the use of water seemed to persist right through the night, only dropping to 63% of the average daily use during the night in the high-service section and to an inefficient 76% in the low-service. Of the 14 mgd coming in from the lakes, there were 7 mgd unaccounted for. A study of the distribution system was called for by H. W. L. Doane, manager of the Public Service Commission which furnishes Halifax's water supply.

Halifax, capital of Nova Scotia, is a military and naval station and Canada's greatest eastern seaport. It supports a population of approximately 90,000. Its two service systems receive water from separate sets of lakes, with a 3½-mg storage reservoir acting as a reserve in case of fire or pump failure. The distribution system has a third small "super-high" section supplied by two electrically driven centrifugal pumps. The low-service system has two pumping stations, one containing two pumps of 3,600 gpm and one of 4,000 gpm capacities. These three are used to pump water from the low- to the high-service station. In the other station there are three electrically driven pumps of 5,000 capacity each, kept for booster purposes. The high-service has a pumping station (referred to above) which takes water from the low-service main into the high-service section and the reserve storage reservoir. Pumping equipment consists of two electrically driven centrifugal pumps of 4,000-gpm capacity. Also in the high-service pumping station are the "super-high" service pumps, which are rated at 40 gpm against a 100-foot head.

Water Soft and Pure

The water furnished to these systems is soft and free of impurities. The only treatment required consists of chlorination. There are approximately 114 miles of main in the system, ranging in size from 2 to 27 inches. The services are 100% metered.

With this firm foundation to build upon, Manager Doane called in engineers from the Pitometer Co., New York, N. Y., and requested that they make a water waste study, analyzing not only the condition of the mains but also the valves and meters, and in general to make recommendations that would strengthen the system. The company accordingly began proceedings for such a survey, which was conducted along the following general lines:

1. Measured the total consumption of water for a period of twenty-four hours; tested the gravity supply lines for leakage and the master meters for accuracy.

2. Divided the system into ten districts; measured water used in each for a period of twenty-four hours.

3. Further investigated all districts where excessive waste was indicated by the Pitometer, in order to detect all underground leaks in the mains and services.

4. Tested for accuracy all meters larger than 3 inches, testing them in place, under normal conditions; tested systems of large users to detect illegal use through fire lines or similar apparatus.

5. Prepared a map of the distribution system showing the locations of all Pitometer gaging points, district boundaries, and other features of the survey.

Underground Leakage

The survey, completed late last year, resulted in the location and repair of underground leakage amounting to more than 5½ mgd, or 42% of the total use. It disclosed further that soil conditions allow water to escape under-

ground, and, therefore, the majority of leaks will not be disclosed at the surface. This indicated the need for annual surveys of this nature in certain sections, in order to keep underground leakage at a minimum.

The survey further disclosed under-registration of industrial and commercial meters amounting to 324,000 gallons per day. As a consequence, the importance of periodic tests of all large meters was emphasized.

It also showed that many valves leaked at the packing glands when they were operated, others could not be operated, many were found to be covered over, and some were found closed. It was recommended that a definite program of periodical valve inspection and maintenance be inaugurated. It also strongly urged that the practice of paving over valve boxes be stopped, and that all buried boxes be uncovered.

Manager Doane summarized the results of the survey in a report to the Public Service Commission. He pointed out that the underground leakage located amounted to 5.572 mgd, or roughly half the total supply. This alone meant a savings in power cost of $111 per day, or something over $40,000 per year. He also showed that, by correcting the under-registration of the commercial meters, an annual potential increase in revenue of $7,000 could be realized. Considering these two items alone, the annual savings resulting from the survey would amount to $47,000, or more than five times the cost of the survey.

Regarding the valves, Mr. Doane reported that twenty-eight were found to be defective, twenty-two were discovered to turn in a left-handed direction and required appropriate marking, thirty-one that should have been open were found closed, and one 24-inch valve was found only half open. Nearly 300 were covered by pavement or earth and eighty-four required repacking. Most of the necessary corrections were made as the survey progressed.

Aside from the purely financial aspect, the system has received many other benefits from its rehabilitation. It now carries an increased pressure of 15 psi in the downtown section thus improving service. One of the pumping stations that formerly ran continuously now has to run only part of each day and does not operate at all during the week-end. This increases the amount of water available for fire-fighting.

"The present condition of the distribution system," Manager Doane states, "is almost as good as could be expected from a brand-new system. It, of course, cannot be expected to remain that way without continued maintenance. However, it is a very comfortable feeling to know that the system is practically tight."

Municipal Power is Popular

Diesel-generated plant gives big service in Janesville, Minn.

MORE than one home in every three in Janesville, Minn., population about 1,300, contains an electric stove. There are 134 stoves on a total of 360 residential meters. The ratio of 37% is only one indication that Janesville folks like the service of their municipal diesel electric plant. They pay their bills promptly, with no delinquency. They recently increased the plant capacity by three-fourths.

Installed in March 1939, the plant generated 746,150 kw-hrs of energy in the first twelve months. Its output was 1,093,180 kw-hrs in 1945.

Its first two diesel engines have a combined hp of 600 and their alternators a rated capacity of 396 kw. Addition of a new 6-cylinder engine in the summer of 1945 raised the total hp to 1,050 and the capacity to 698 kw, nearly twice last year's peak load of 350 kws.

Janesville, incorporated in 1870, got its first electricity supply from a flour mill. This gave way to transmission-line service. When the utility's twenty-five-year franchise expired in 1939, the village went on its own.

The value of the plant site, the building, the heavy machinery, other equipment, and the distribution system comes to about $155,000, without depreciation. A public-spirited citizen gave most of the site to the village. A federal grant of $31,455—remember PWA?—and issues of revenue certificates financed the enterprise. Plant earnings had retired $63,792 in certificates by December 31, 1945, as well as having paid interest from year to year. The outstanding certificates, totaling $57,200, are to be paid off by January 1, 1951. They are not callable. There was a cash surplus, at the close of 1945, of $7,829.

Of the 194 meters, other than resi-

dential, in the distribution system last year, 82 were commercial light, 78 hot water, 29 power and 5 commercial heat. Major industries which used power included a feed mill, three hatcheries, a creamery, two grain elevators, two locker plants, and a poultry processing plant.

Performance of the plant in the nearly seven-year period—fiscal years to April 1942, calendar years after 1942—is presented in this table:

Year	Volume Generated kw-hrs	Average kw-hr Revenue	Del. Cash per kw-hr Generated	Kw-hr per Gal. of Fuel Oil	Peak Load kw
3/23/39— 3/31/40	746,150	2.85c	1.38c	11.6	230
4/1/40— 3/31/41	846,410	3.06	1.30	11.7	265
4/1/41— 3/31/42	900,830	3.06	1.40	11.9	285
4/1/42— 12/31/42	727,319	2.83	1.44	12.7	255
1943 (calendar)	974,730	2.99	1.34	12.2	290
1944	1,014,630	3.01	1.40	12.4	290
1945	1,093,180	2.89	1.52	12.7	350

Long before the utility's franchise expired, Janesville had given thought to putting in a municipal plant. The utility's residential rate schedule, devised on a room-count basis, was a major irritant to consumers. As a placating measure, in seeking renewal, the utility offered a revision of the residential schedule. In this, the room-count factor was to be discarded in favor of uniform charges for consumption only.

The room-count schedule, residential, had led off with a fixed charge of 10 cents a room per month, to be added to energy charges which ran as follows:

First 6 kw-hrs per room per mo. at 6c kw hr
Next 50 kw-hrs per month 3.5c
Next 50 kw-hrs " 2.5c
Next 200 kw-hrs " 2.0c
Excess kw-hrs " 1.5c

There was a 5% discount for prompt payment. The minimum charge was the fixed charge, but it was to be not less than $1.00 net per meter per month.

The monthly bill was computed in this way. If you lived in a four-room house, there would be a fixed charge of 40 cents to start. Then you would pay at the rate of 6 cents a kw-hr for the first 24 kw-hrs. The later steps would be on straight consumption, regardless of the number of rooms.

If you had a six-room house, you started off with a flat 60-cent fixed charge. Then you would compute 6 cents a kw-hr for a first 36 kw-hrs. If your house had eight rooms, you paid for that luxury. The fixed charge was 80 cents, and the first energy charge was 6 cents a kw-hr for 48 kw-hrs.

Take three users whose consumption for a month was 60 kw-hrs each. The first, in a four-room house, paid $2.95. The second, in a six-room house, paid $3.42. The third, in an eight-room house, paid $3.90.

Obviously, electric rates in Janesville penalized, if not deterred, the building of larger dwelling homes.

The municipal plant adopted virtually the same residential rate schedules as the utility's energy rates except for the top and beginning rate. The new plant ignored the number of rooms in a consumer's house and set a top rate of first 40 kw-hr per month at 6 cents each. This municipal schedule is in effect today.

Residential charges net for monthly consumptions of 10 to 100 kw-hrs on the utility's room-count basis for four, six, and eight rooms are compared in the following table with the net charges of the municipal plant:

Kw-hrs per Month	Utility 4 Rooms	Utility 6 Rooms	Utility 8 Rooms	Municipal
10	$1.00	$1.14	$1.33	$1.00
20	1.52	1.71	1.90	1.14
30	1.95	2.28	2.47	1.71
40	2.28	2.76	3.04	2.28
50	2.61	3.09	3.56	2.61
60	2.95	3.42	3.90	2.95
70	3.28	3.75	4.23	3.28
80	3.55	4.08	4.56	3.61
90	3.79	4.38	4.89	3.94
100	4.03	4.62	5.21	4.18

For commercial lighting, the municipal schedule has a top rate of 7 cents for the first 50 kw-hrs and a bottom rate of 1½ cents for excess over 2,500 kw-hrs, with five intermediate rates.

The municipal power schedule ranges from 5½ cents for the first 200 kw-hrs to 2¼ cents for excess over 4,500 kw-hrs, with three intermediate rates. It has a minimum of $1.00 per hp for the first 2 hp, and 50 cents per hp for each hp over two.

Free services of the plant, at a cost of about $300 a year, include lighting of the fire station, the village council room, the constable's room, and the public rest room for women (all of which are housed in the plant building), special Christmas street lighting, and power for the fire siren. The plant building is heated without cost by the hot water circulating through the engines.

Mr. Gardner has been a member of the commission throughout the period of municipal ownership. The other members are A. A. Wilson and E. J. Wilkinson. James McIver has been plant superintendent for the last three years.

Principal Equipment

Municipal Electric Plant, Janesville, Minn.

Diesel engines: One 3-cylinder, 225 hp; one 5-cylinder, 375 hp; one 6-cylinder, 450 hp. Each 300 rpm; all are Model 32E14, Fairbanks, Morse & Co.
Governors: Woodward Governor Co.
Generators: One alternator of 185 kva, with 7½ kw belt-driven exciter; one of 312 kva, and one of 375 kva; each with 10-kw belt-driven exciter; all Fairbanks, Morse & Co.
Switchboard: General Electric Co.; nine panels, with three voltage regulators and one Diactor regulator.
Cooling tower: One Fairbanks, Morse.
Silencers: One Maxim; two Fairbanks, Morse.
Air filters: American Air Filter Co.
Fuel oil reclaimer: One Hilco, Hilliard Corp.
Fuel oil filters: Three Niagara.
Fuel oil meters: One Hershey; two Buffalo Meter Co.
Pyrometers: One Alnor; Illinois Testing Laboratories, Inc.
Recording thermometer: General Electric.
Distribution Transformers: Westinghouse.
Distribution meters: Duncan.
Storage Tanks: One 20,000-gallon at railroad tracks; two 15,000-gallon at plant.

Competitive Bids for Engineering Service?

THEY aren't necessary according to a recent state supreme court ruling (S.F. No. 17,298). The case revolved around a contract for engineering services made by the City and County of San Francisco awarded to a firm whose bid was not low.

The court quoted several previous rulings which allowed the selection of professional services on the basis of qualifications. It pointed out other decisions that reasoned that advertising for bidders might easily produce the low bidder who at the same time was the least capable and experienced, and again, that the employment of a person who is highly technically skilled in his science or profession is one which may properly be made without competitive bidding.

The opinion of the court in rendering this decision was unanimous.

Two More Counties Adopt Manager Plan

Recent adoption of the county-manager form of government by Fulton county, Ga., and McMinn county, Tenn., raises to eleven the number of counties under this plan, according to the International City Managers' Association.

Hartford Becomes a Council-Manager City

Important features of the new charter

By GRANT H. BUBY
Acting Director
Hartford Governmental Research Institute, Inc.

WHEN Connecticut's governor signed the Hartford council-manager charter bill in May, the objective of a two-year-old movement was realized.* In July, 1945, Hartford's mayor requested aldermanic permission, later granted, to appoint a 9-member charter drafting commission, after a state legislative deadlock on the matter. The commission held extensive public hearings, then proceeded to draft a council- manager charter.

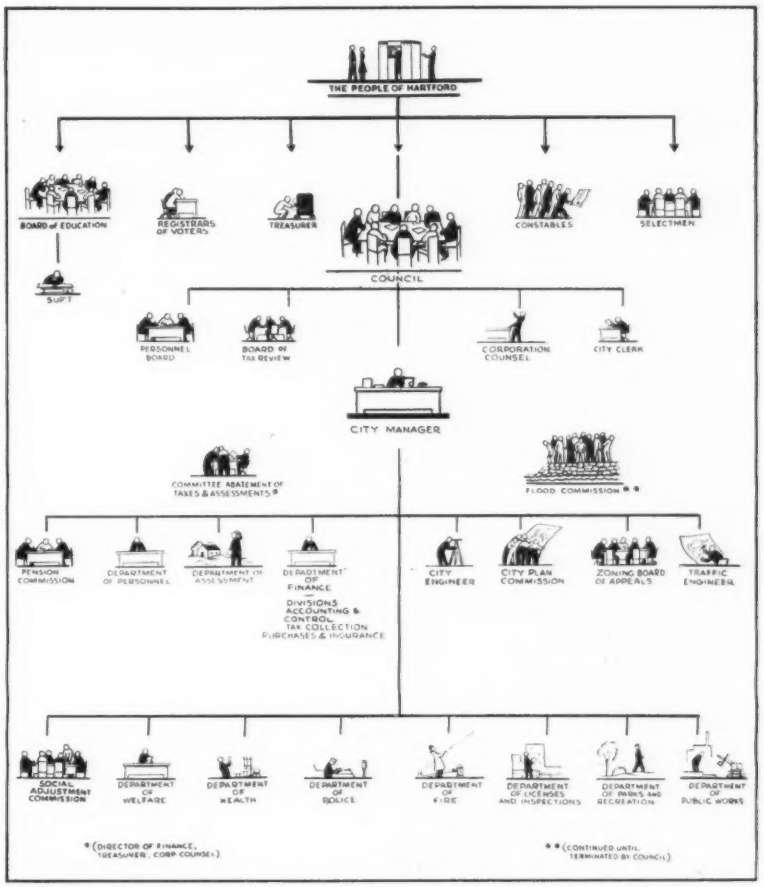
The new document was to be voted upon at the November 1946 election, but an opposition move for a special charter election in December finally won, although strongly opposed by the local press and charter proponents. It appears that this decision actually contributed to charter approval; the opponents' theory was that a special election would produce a small voter turnout, with the votes controlled by the two major parties (which had combined to fight the new charter) being sufficient to defeat it. Actually, with party funds depleted by the November election, it was impossible to pay precinct and ward workers to get out the vote.

Citizen Charter Committee's Work

More important to the campaign's success, however, was the Citizen Charter Committee's work. Organized five months before election, the Committee carried on a vigorous radio and newspaper campaign for the charter, and solicited votes on a door-to-door basis. Both local newspapers were pro-charter, and presented wide campaign coverage, using special news stories and features.

Overwhelming approval by 21,089 to 9,748 of the charter gave a virtual mandate to the legislature to approve it without change (legislative action being required because of the lack of home rule in Connecticut). Such ratification was obtained in March.

The accompanying organization chart reveals the relative simplicity of the new charter's governmental structure. The



This chart shows the simplicity of the new charter's governmental structure.

"weak-mayor" type of government and the twenty-member board of aldermen are replaced by a city manager appointed by, and responsible to, a 9-member council elected at large by non-partisan primary and general elections. Eleven of the seventeen appointive citizens boards are abolished; instead eleven single-headed departments are created. A merit system is established, an actuarially sound Municipal Employes Retirement Fund for new city employes becomes effective, financial controls and procedures are tightened and integrated, and a degree of home rule is provided in allowing charter amendments to be made without recourse to the legislature.

Provisions Immediately Effective

Most of the new charter's provisions are inoperative until January 1948, but some became effective with the governor's signature. The immediately effective provisions include a ban on permanent appointments to the classified service until January 1948, to forestall last-gasp political appointments; nomination of candidates for primary elections; a November 1947 meeting of the newly elected council to select a city manager; budget preparation for 1948-49 by the present board of finance, whose member's tenure, like those of certain other city officials, are expressly continued until transition to the new government is complete.

The Governmental Research Institute, always having realized the necessity for a thorough revision of the Hartford charter, believes that with the new, carefully-constructed document, the city has the opportunity, with effective citizen participation, to manage its governmental affairs more efficiently and economically. In whatever way possible, the Institute will gladly cooperate in the realization of that opportunity.

* See article "Hartford Seeks Simplified City Government" in THE AMERICAN CITY for March 1946, p. 90, for a reproduction of the city's old organization chart.

Nearly A Quarter Billion in a Quarter Century

Capital expenditures—public and private—of $244,176,500 are proposed in the master plan of Newark, New Jersey

By JOHN R. BURNETT
Executive Secretary
Newark Central Planning Board

ONE of the most alarming internal problems facing the American people today is the blight that has settled upon our urban municipalities. Unlike the European cities, which evolved from medieval towns created for the purpose of mutual defense, American cities developed because of geographical or technological reasons based on transportation advantages. Integrated community living and physical form-order were subjugated to the needs of industry and the demands of labor and material markets.

Disintegrated Cities

Today, most of our major cities are a sad jumble of gargantuan public structures, magnificent central business-district stores and office buildings, sprawling industrial developments, blighted residential sections, and sordid slum areas. Add to this an archaic state and county system of government, whereby rural areas out-vote heavily populated urban areas; a splendid and far-reaching state and national highway network to serve the modern automobile and encourage decentralization, and it becomes readily apparent why disintegration has progressed to a point where our cities are in really desperate straits.

The only practical approach to our urban problems, seems to be the preparation of a comprehensive master plan to rehabilitate and re-design our urban communities in order to overcome the two-dimensional technical errors of the past and develop a three-dimensional pattern for the future where the physical, cultural, and esthetic needs of the people are balanced for more adequate and gracious living.

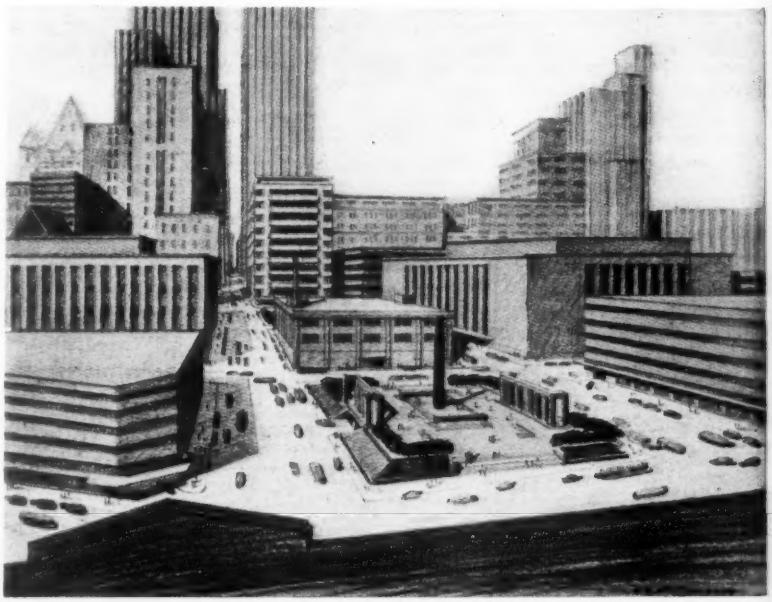
The complete master plan is a scientific analysis of the past and present physical condition of the municipality; its financial background; its immediate needs; its future growth. It is, in short, a compendium of all that *has* happened in the community; *is* happening; *will* happen, if corrective measures are not applied, and *should* happen, if proper measures are adopted. But these words, phrases, charts, and maps merely constitute wasted time and effort—"planning for planning's sake alone"—unless the flesh and blood element is added, and the citizens of the affected municipality unite to give it life.

Obtaining Citizen Participation

The city of Newark, N. J., has reached this stage. Our master plan, upon which we have worked for the past three years, is completed, and we must now present it to our citizens for their consideration. As an integral part of our planning process, we have had a Citizens' Advisory Committee of approximately 200 men and women counseling and advising our Planning Board and our professional planners. This committee was divided into various subcommittees assigned to the study of particular phases of the city plan. When the plan was completed, the committee met as a unit, and the entire plan was explained in detail.

Enthusiastically received upon its merits, the committee realistically decided that, unless the greater majority of the citizens of Newark united to demand the adoption and carrying out of the plan, it would become merely another report stored in the archives of the city. They have determined, therefore, to set up a Speakers' Bureau which will take the plan into every section of the city. These speakers will discuss the master plan and explain to the people how it will affect both them and their particular neighborhood, if carried out. Working with the Speakers' Bureau will be a Meetings Committee which will arrange for master plan meetings in homes, schools, churches, lodges, organizations, shops, factories, and stores. In this manner, it is hoped to infuse life into a technical treatise and create a civic pride and spirit that will uplift and improve the entire city of Newark.

Coincident with this personal approach to our citizens will be an advertising drive in which all of the standard media of advertising will be used.



The first stage in the proposed redevelopment of an area now badly blighted.

As Mayor Vincent J. Murphy stated in a recent address before the Citizens' Advisory Committee:

It has been said that 'whatever man wills, so can he do', and, if we are to see this master plan, upon which we have worked, become an accomplished fact, we must awaken the will of the people. Without civic pride, we are just another middle-class city; with civic pride, we will become one of the greatest cities of America!

Most certainly it will be necessary to awaken civic pride and enlist citizen cooperation if a program of the magnitude proposed by our master plan is to be effected.

This plan contemplates an over-all capital expenditure of $244,176,500 of funds from municipal, county, state, national and private enterprise sources over the next twenty-three years:

The expenditure on the *basic street pattern*, for street opening, widening, grading, and re-paving projects, will amount to $81,895,000.

Another $68,500,000 will be spent for *re-development projects* designed to eliminate our slums and bring adequate living conditions to our under-privileged.

The alleviation and correction of our *parking problem* will cost $13,812,600, which will provide municipal parking lots, open-deck parking garages, peripheral parking areas, and a large underground shoppers' parking garage.

Suggested *school, playground, and neighborhood park expansions and improvements*, involve an expenditure of $40,315,000.

A large *convention hall and sports arena*, capable of seating 20,000 persons, is estimated to cost $8,813,500. A *cultural auditorium*, containing a concert hall designed to seat 4,000 persons, and a smaller theatre to seat 1,200, will cost another $6,461,000.

A new *city hospital* is given high priority on the list of necessary improvements and is estimated to cost $6,000,000.

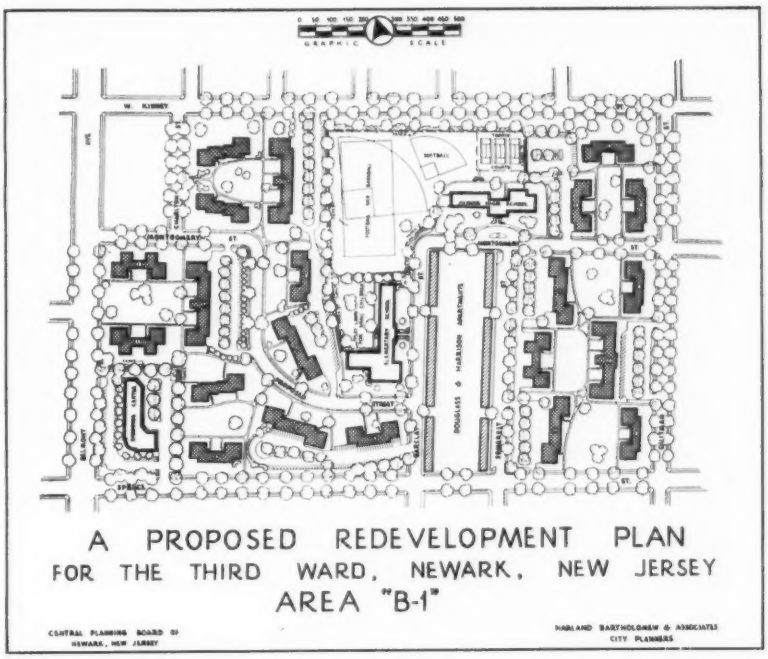
Other improvements, such as modernization of our water system, rehabilitation of public buildings, and the construction of certain other necessary buildings are estimated to cost $43,230,500.

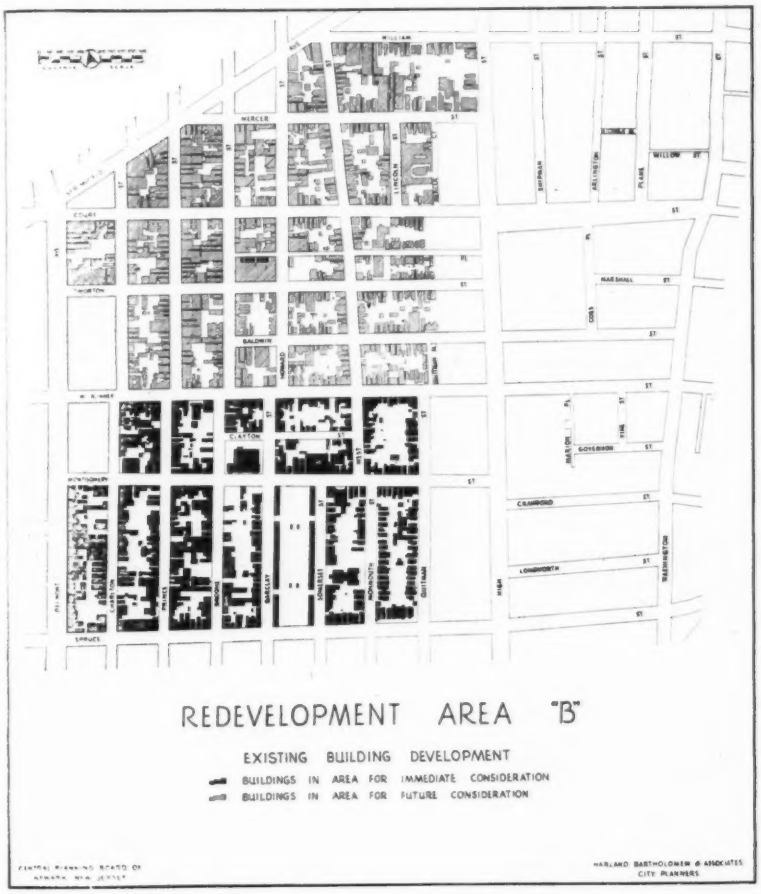
25-Year Program

While this capital improvement program is scheduled to cover a twenty-five-year period, its magnitude is such as to give pause to elected officials who will be required to adopt it, unless the greater majority of the citizens of Newark are in accord.

Considering that the per capita expenditure involved is approximately $530, it is readily apparent that the program is the personal business of every man, woman, and—because of the time element—child, in the city of Newark.

We are truly at the crossroads, and it is the citizens themselves who must choose Newark's road to the future.




REDEVELOPMENT AREA "B"
EXISTING BUILDING DEVELOPMENT
BUILDINGS IN AREA FOR IMMEDIATE CONSIDERATION
BUILDINGS IN AREA FOR FUTURE CONSIDERATION
HARLAND BARTHOLOMEW & ASSOCIATES
CITY PLANNERS

These two reproductions illustrate how a typical blighted area, the buildings of which are shown in solid black on the bottom map, can be redeveloped into one which provides adequate light, air, and school recreational facilities through intelligent planning. The Douglass and Harrison Apartments, seen in the plans, represent an early venture of the Prudential Life Insurance Co. into the rental housing field.

A Community Program for Labor Management Peace

For years Minneapolis has been known as a strong labor city. It has had its dark days of labor-management warfare. Yet today, it stands out as one of the cities in America which has come through almost two years of post-war reconversion without a major strike or disruption of major service. There is a reason for this. That reason does not rest either in the weakness of business or labor, since both are strong; rather, it is to be found in a pattern of community relations which was evolved during the war, and which has been expanded since the peace.

IT IS the task of American leaders in government, business, and labor to analyze the causes of our present industrial discontent, and to promulgate a program which will guarantee an orderly procedure for the solution of labor-management controversies. Strange as it may seem, there has been little or no concerted effort either by government or business to investigate thoroughly the causes of labor disputes, or to effectuate a constructive program aimed at providing a means of solving these problems. We have rested our case upon what is known as collective bargaining, mediation, conciliation, arbitration, and if these should fail, the use of force by either management or labor. Only recently has government directly intervened in the economic disputes between capital and labor. All too often this intervention has increased the existing tension and has failed to get to the fundamental causes.

Our present program seems to be one of legislating first and studying the problem later, if at all. This will lead to more economic confusion and chaos, which may threaten our entire economic system. It is the responsibility of government, acting in behalf of the people, to institute a long-range program of analysis and study of labor-management relationships. Such a comprehensive program would provide the information and background needed for constructive policies on the part of government, business, and labor.

Local Experiments

Certain American cities are experimenting in this endeavor. Labor-management committees, or industrial relations commissions, have been established in such communities as New York, Toledo, Louisville, and others. At the local level, government, business, and labor are striving to find a pattern of cooperation which can lead to sound labor-management policies. This experimentation on a community level is encouraging and demonstrates the recognition of the importance of finding a means for the equitable solution of economic controversies which may disrupt the entire life of a city, state, or nation. Effective leadership and industrial cooperation could, and should, come from those entrusted with political responsibility. Those of us in public office can no longer evade the issue of labor relations either between private business and its employes, or government and its employes. There can be no hiding behind the law. A disruption of community service by a strike of public employes or the shutting down of a plant because of a breakdown in collective bargaining is of such importance that to leave these matters to a sheer test of strength on the part of the contesting forces is to invite disaster and to promote antagonisms which may seriously jeopardize the future of our economy.

Minneapolis Example

We in Minneapolis feel that we have recognized these responsibilities and that our city offers an example of what can be done in the promotion of harmonious relationships among government, business, and labor interests.

Minneapolis is a city of over a half million people. It has strong labor organizations consisting of the American Federation of Labor, Congress of Industrial Organizations, and Railroad Brotherhoods. The membership of these three great organizations approximates 100,000 persons. It is obvious that such a membership represents a sizable portion of the total population of the city.

Organized labor in Minneapolis was made an integral part of civilian defense during wartime. It has been an active participant in such organizations as the Red Cross, the Community Chest, and the Council of Social Agencies. Its representatives and leaders have been brought into community service on a position of equal standing and responsibility with the representatives of business and the professions.

The labor movement of Minneapolis has demonstrated its political power and, at the same time, capably assumed its political responsibilities. It is to the eternal credit of organized labor in this city that it spearheaded the program for revitalizing our school board, and ultimately strengthening our system of public education. The labor movement actively participates in municipal politics, endorsing candidates and working for their election. I was elected Mayor of Minneapolis with the endorsement of the A. F. of L., the C.I.O., and Railroad Brotherhoods. At the same time, it has been made clear to my friends in labor that, as Mayor of Minneapolis, my obligation as a public servant is to the whole community, and not just to a section of it.

At all times I have found the leaders of organized labor willing to cooperate with me in an effort to promote a better city, both as to its economic life and as to its community institutions. It has been and it is my firm conviction that the interests of labor are basically the interests of management, government, and the entire community.

Equal Representation

One of the primary efforts of my administration has been to bring representatives of labor into intimate contact with business and civic leaders in Minneapolis at every opportunity. I have operated on the theory that if men and women get to know each other on a personal and friendly basis, they are

New York's program is described in *The O'Dwyer Plan for Industrial Peace*, available from Thomas J. Shanahan, Federation Bank and Trust Co., 461 Eighth Ave., New York, N. Y.

By **HUBERT H. HUMPHERY**
Mayor
Minneapolis, Minn.

much more capable of understanding one another and thereby resolving their differences. One of the tragedies of modern industrialized society is its impersonal nature. Labor-management cooperation can never be reached unless the interested and responsible parties know each other through association in other situations besides those of labor-management difficulties. Men and women who work together in a Community Chest drive, for the Red Cross, for a housing program, on a youth welfare committee, etc., grow to understand each other's personality. Ties of understanding and friendship develop which carry through even when there seems to be a conflict of interests.

Minneapolis has a so-called "weak mayor" system of city government. As a result, the mayor must work through a system of volunteer citizens' committees to accomplish his program. A number of such committees has been organized and activated in this community during the last two years. Each has included representatives of both labor and management. There has been equal participation. All too often public officials, in order to give labor recognition, appoint one or two labor people to a committee, and then fifteen or sixteen business and civic leaders. This policy has not been followed in Minneapolis. If I appoint three businessmen, I also appoint three labor leaders. Before these appointments are made, I ask for the recommendations of the labor groups. In this way, the representatives of labor are not the personal choice alone of the mayor, but they also can speak for and are responsible to the labor movement.

Labor is fundamentally involved in the community life under such a program, and those who represent labor bring with them the support of their large organizations. Through these mayor's committees, or citizens' committees, business, civic, and labor leaders have not only had the opportunity to meet each other on common ground, but have also made significant contributions to the solution of some of our most serious municipal problems. Labor and business in Minneapolis are working side by side on the Mayor's Tax and Finance Commission. After all, the problems of the city government are the problems, not of the mayor and the council alone, but of the citizens. When businessmen and labor leaders are given the responsibility of answering for some of the needs of the community and of making recommendations for the solution of critical city issues, they have to think, plan, and work together. Business and labor leaders who become involved in the protection of the welfare of the community soon see the relationship between a sound and wholesome community and the solution of their labor-management difficulties that center around the industrial plant.

Making Policy Clear

My policy has been made clear and definite when dealing with such labor problems as contract negotiations and strikes, and it has not been deviated from. Business and labor in Minneapolis have been informed that the mayor's office stands ready at all times to act as a mediator, or conciliator, in industrial disputes. It has been equally clear that as mayor I insist that all legal and regular means of state and federal labor conciliation, along with honest collective bargaining, be utilized before the services of the mayor are called upon or offered.

Business and labor in Minneapolis clearly understand that I do not subscribe to the use of police or of force in the settlement of labor disputes. Early in my administration some employers requested police protection to help them pass through picket lines. Today, no employer would make such a request. I promptly informed both business and labor that it was my responsibility to uphold the law, and not to settle their economic difficulties by using the police either for management or for labor. Labor organizations have been informed that they must abide by the laws pertaining to picketing. They clearly understand that violence in labor disputes will not be tolerated. Whenever there has been a question as to the use of police, that question has been referred directly to me. I assume all responsibility and do not leave it to a police captain or sergeant, or to any police officer.

Minneapolis business and labor now accept without question our policy as to the use of police in labor disputes, and there has been no violence as a result of labor difficulties during the past two years.

Frequently, disputes between labor and management do not center around economic issues or working conditions. On the surface it may appear that the difficulty that has provoked a strike situation is an economic one, but upon closer examination it will be found that the problem is primarily psychological, or, to put it more directly, an issue of power. Both business and labor are reluctant to yield to the requests or demands of the other party. Statements are often made by the representatives of the opposing groups which aggravate the situation and which overshadow the real issues involved.

It is the task of a conciliator or an outside person to keep a sense of objectivity and impartiality. It is imperative that the public official or the private citizen who offers his good offices have an intimate knowledge of the history of the company involved and the personalities who are handling the negotiations. There is always the question of saving face. Both parties in a labor dispute wish to come out of the negotiations with victory in their hands. And strange as it may seem, this is possible, because in any negotiation between labor and management it is recognized that both parties must give and compromise if a settlement is to be reached. The success of a skillful negotiator is to conduct the hearings and proceedings in such a manner as to permit the representatives of labor and management to feel that the ultimate settlement is equitable and gives something of value to both parties.

Under present practice, labor difficulties are brought to a public official's attention from two sources: (1) the city's government itself, on those occasions when city employes themselves desire to take action to improve wages or working conditions, and (2) private enterprise, when disputes arise between management and labor outside the city administration.

Settling Public Employe Grievances

The experience of solving labor-management difficulties within the framework of city government has been a positive one. Minneapolis city employes are strongly organized. They have grievances concerned with working conditions as well as requests for higher pay.

In dealing with employe problems a governmental institution is subject to various difficulties because of the laws under which it is established and must operate. These difficulties, when not fully understood by both parties to any dispute, frequently result in unnecessary strife and misunderstanding.

In order that organized labor in this community could better appreciate the nature of these problems, as well as share in the direction of its government, top labor leaders were appointed to important city personnel jobs.

The president of the Central Labor Union is at present one of the Civil Service Commissioners, with a share of jurisdiction responsibility over some 6,000 Minneapolis civil service employes. The chairman of the Hennepin County C.I.O. has been appointed to the Board of Public Welfare, which is vested with authority over health and wel-

fare functions in this city and under whose direct control some thousand Minneapolis employes work.

The general approach of all members of these boards has been one of reasonableness, understanding, and cooperation, and the general attitude of city personnel has benefited correspondingly. As a result of our experience here in Minneapolis, I can strongly recommend that other city administrations use responsible labor leadership in important city positions.

Industrial Disputes

Labor problems outside the city administration proper present a different type of problem. When a dispute arises in private business circles a public official hesitates to intervene. He is bound to find himself in the crossfire of both sides of the conflict, and each side will certainly seek to use him for its purposes. In addition, intervention by the official is more apt to lead to disaffection than to the promotion of the reputation of the official concerned.

Nevertheless, many labor disputes vitally affect the welfare of the entire community, and the Mayor, as a conscientious chief executive, must do his utmost to bring about a settlement of such problems.

Experience has convinced me of the need for establishing some type of an official labor relations committee in communities which have labor-managemtnt misunderstandings. Such an instrumentality, serving in an official capacity, could handle not only imminent strike situations but also provide a program for the elimination of the causes of friction which so often lead to strikes.

We are very proud of the fine labor relations record this community has earned in the last six years and feel that everyone has learned a great deal about "the man on the other side of the fence." This process of educating ourselves about our neighbors and our mutual problems must go forward unceasingly.

Such a program is not without its difficulties; but experience has proven that the leaders of all factions within a city can and do come to feel a mutual respect for one another when they are given the opportunity to work shoulder to shoulder. Close cooperation spells eventual defeat for the forces of suspicion, hatred, and misunderstanding. Such cooperation among the leaders is bound to result in group brotherhood as opposed to group sabotage, which springs from mutual suspicion.

I believe any community with this sort of program can promote labor-management peace and insure for its people a harmonious, prosperous city.

Better State-City Cooperation

A REDUCTION and reorganization of the 155,000 local government units in the United States has been suggested in a report on state-local relationships published recently by a committee of the Council of State Governments. To strengthen local units of government, as well as to improve state supervision of local affairs, the report recommends that states grant greater powers to local units, thus maintaining state-wide governmental activities at a high level of performance. These powers should be subjected to flexible state administrative supervision, local revenue systems should be strengthened, local government should be streamlined through consolidation.

The report shows that one of the chief reasons for the stronger fiscal position of the states is because they have diversified their sources of income, while localities derive close to 90% of their taxes from one source—the property tax. Next to that, state aid is the largest single source of local revenue.

However, what a difference there is in amounts of state aid received by localities in various states. Nevada, Maine, and Connecticut, in 1944, for example, each distributed less than 8% of their total expenditures for state aid to localities, while more than 42% of state expenditures was distributed in Kansas, Wisconsin, Colorado and Massachusetts.

There are forceful arguments for the loosening of state controls over municipalities and undoubtedly, if only as a means of streamlining their own administrative problems, some state legislatures will simplify their controls and make them more efficient.

In the meantime, action must be directed along several fronts in order to maintain effective and economical performance of local services. According to a report on state-local relations, many municipalities can increase the revenue from the property tax by improving their assessment and collection procedures, as well as by re-examining existing provisions on tax limits and tax exemptions. To a large extent, the motive power for consolidation and reorganization of governmental units, to avoid overlapping and duplication of taxation and services, still must come from the local community itself. Even in instances where states gave localities wide authority permitting consolidation, local initiative was still important.

Village Takes Part in Kellogg Experiment

STEPHENSON, MICH., a village on the northern peninsula with a population of 800, is one of the five small communities selected by the W. K. Kellogg Foundation of Battle Creek, Mich., for an experiment to determine to what extent local resources can be utilized in strengthening educational programs.

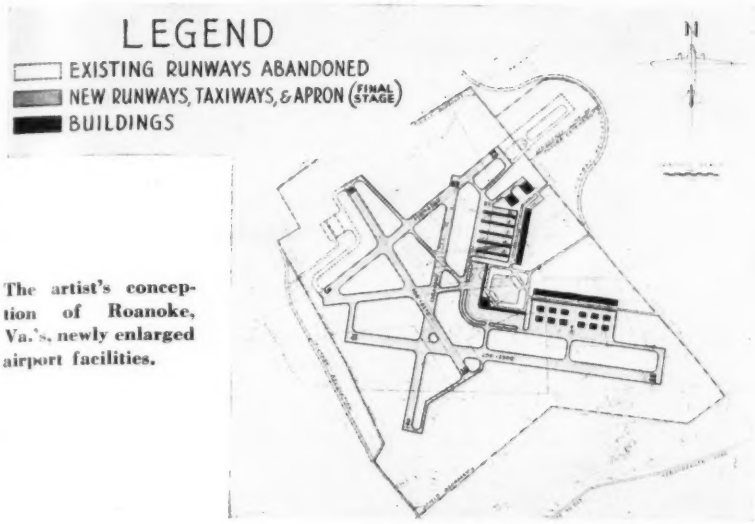
The Foundation's program, initiated last summer, is based largely on the school system's part in shaping community life. The Michigan State Department of Public Instruction has charge of the distribution of Kellogg funds for the experiment to the communities. Joseph Gucky, Stephenson school superintendent, is acting as liaison man between the Foundation and the Michigan department, and a coordinating council has been appointed which is composed of about fifty farmers, business and professional men, workers, and housewives. These people have been drawn from the five townships in the 552 square miles served by the Stephenson schools, designated as the area for the program.

Stephenson was chosen for the program because it already has made much progress in community development as a result of the initiative of its citizenry. As long ago as 1927, Stephenson received national publicity for its "petticoat" government. At that time, women in the village nominated their own slate of candidates and succeeded in electing them. An attractive park was developed along the railroad, taxes were lowered, and the debt was paid off on a music-center building.

In 1937, Stephenson was publicized widely as being the smallest village operating its own water supply and sewage disposal systems. It also has the only steam-operated community cannery in the upper peninsula. It was the first community in Michigan to operate a school bus for pupils living on surrounding farms.

Stephenson is growing. Whatever improvements are to be made must come through the cooperation of its citizens. Judging from past performance, this will not be a difficult task.

A booklet published by the Michigan State Department of Public Instruction, entitled *Help Yourself*, is now available and describes in more detail the success of community programs in Stephenson and other small Michigan municipalities. See page 153 of the April issue.



The artist's conception of Roanoke, Va.'s, newly enlarged airport facilities.

Roanoke, Va., Adjusts Its Airport Sights

. . . and lays plans that will make a good big airport out of a good little one.

ROANOKE'S airport is in the process of graduating from Class III to Class IV; to take this step requires intelligent planning. Roanoke has laid its plans and is ready to turn them into reality, so that adequate air transportation can take its place in the commercial and civic life of this community.

Roanoke needs these facilities. Despite the fact that the city has been a pioneer in small airport development, its terminal facilities simply are not adequate for efficient modern operation.

Private flying requires and can support better features in Roanoke. Today, private flying constitutes the greatest activity at this city's Woodrum Field. If facilities were available, at least 100 planes added to the present 105 would be based there. Based on studies made for the city, at least 150 to 200 privately owned planes may ultimately use this field for their home port.

Major airline operation dictates the need for a field with better facilities. Based on present applications and judging from experience elsewhere, Roanoke can expect at least four major airlines to operate in and out of this field in the next ten years. In addition, at least five feeder lines would use these facilities if they were available. The schedules over these routes would probably follow this estimate: eight main trunk lines, four flights in each direction daily; six local trunk lines, four flights in each direction daily, and six feeder lines, five flights in each direction daily.

These would indicate a total of 172 plane movements daily to provide passenger service only. The number could probably be increased to 200 plane movements daily to take in pickup service.

Peak-Hour Movement

How could this service be supplied? As the capacity of the proposed field is based on peak-hour movements, it is necessary to estimate the peak loadings on the basis of these probable daily movement. The consultants who prepared these plans applied a factor of one-sixteenth to the daily movements to arrive at this figure, and accordingly have chosen thirty-four plane movements per peak hour as characteristic of Woodrum Field's future.

What do plane movements of this order require in runway facilities? The consultants show that these needs can be met economically by a principal runway 5,800 feet long, and two secondary runways 4,800 feet long. These should provide service for many years.

In addition, the future field should have a loading apron large enough to accommodate twelve loading spaces for commercial aircraft, and a terminal building with an expandable arcade to fit the loading platform as the need arises. There also should be a control tower, administrative offices, a weather bureau, mail and baggage facilities, a lobby, spectator decks, a restaurant, and telephone and telegraph service.

The terminal area should have two commercial hangars which would not only be used to house certain commercial aircraft but also to repair and service any planes requiring this. It should have individual hangar service for approximately 150 personal planes and will have a building to house fire-fighting and ambulance facilities.

Where will Roanoke build this expanded airport? Will she enlarge the present field or abandon it in favor of a more suitable location? This subject required extremely careful analysis by the consultants and resulted in a study that showed clearly the economic advantages of enlarging the present field.

How is this going to be done? The consultants recommended retaining two of the present runways, one of which is to be extended. This runway, designated 5-23, can be lengthened conveniently to 4,300 feet by acquiring added property when necessary, and to 5,800 feet by relocating the adjoining state highway.

The second runway to be retained, 15-33, would be used primarily by small private planes. Difficult approach conditions make the runway impractical for use by the larger transport planes.

The plans also cover a new north-south runway, 2-20, that provides a runway 150 feet wide by 4,800 feet long with at least a 30:1 clear glide angle from the north, and virtually no obstruction from the south. It also calls for an instrument runway, (10-28), 5,800 feet long and 200 feet wide.

For terminal facilities, the port, ultimately, would have a loading apron 1,800 feet long and 300 feet wide, able to accommodate twelve commercial aircraft. It also will have a building and passenger arcade, a fire station and ambulance unit, hangars, and auto parking space for 500 cars, plus repair and maintenance shops. The entire proposed plan of development will advance in easy stages as the varying needs arise. Preliminary estimates place the total cost of the improvements at $3,685,500. The cost of the first stage is estimated at $1,698,000 and the second stage at $1,081,000.

The airport study resulting in this master plan development for Roanoke was prepared in the offices of Horner and Shifrin, consulting engineers, St. Louis, Mo. The report was delivered to the city of Roanoke by way of its city manager, W. P. Hunter, who has been active in the development of the Field since its beginning in 1928.

Refuse Incineration Displaces Landfill

Rising costs and waning efficiency lead New York to abandon the landfill method of refuse disposal.

WASTE disposal through incineration has been restored in New York City, after ten years of refuse disposal based on the sanitary landfill principle.

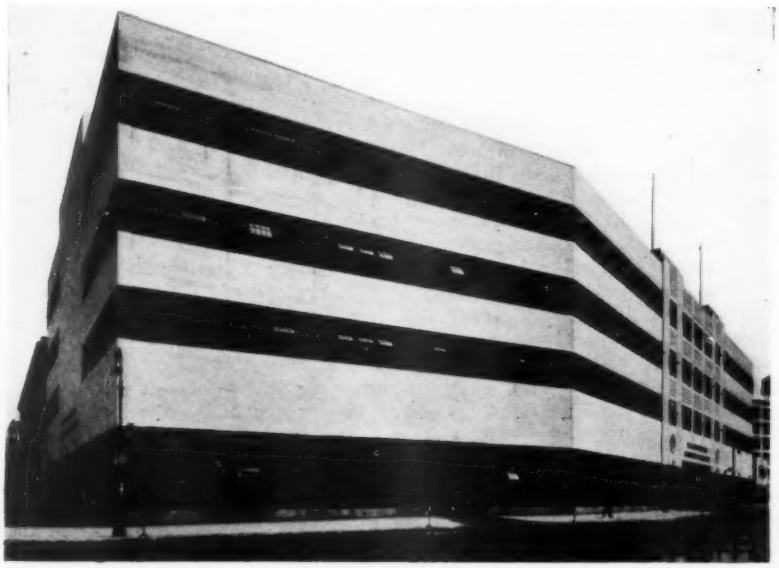
The Department of Sanitation is running its ten incinerators at full blast. Four of them have been reopened after an eleven-year period of enforced idleness, while eleven others remain inoperative because they were dismantled during the twelve-year period of the landfill method of refuse disposal.

Within three years, the completion of five new incinerators and the modernization of two others will find the world's largest city burning all of its combustible waste.

These are some of the reasons for the return to incineration:

- Civic protests against garbage dumping in landfills.
- Rapid disappearance of unreclaimed, fillable areas.
- The need for restoration of adequate collection service which had been sacrificed for long-haul trucking of fill.

John C. Garbarini, assistant to Commissioner William J. Powell, is in charge of the incineration program. A career employe, Commissioner Garbarini rose from the ranks to city superintendent and, soon after, to his present post.



Above: One of the sanitary fills that New York City plans to abandon in favor of incinerators. Below: This attractive, conveniently located incinerator in midtown New York gives the type of refuse disposal that the city now prefers.

Garbage Dumping

For years, Queens and Richmond taxpayers had objected to the dumping of garbage and had tried unsuccessfully in court to prohibit the practice. Dumping of non-combustible refuse with clean incinerator ash was unobjectionable, they agreed, and they were aware that this had been the practice prior to 1934. They objected principally to the odor of the garbage. There was no question of rat nuisances because 20-ton tractors filled up the holes which might accommodate the rodents. It was purely and simply a revolt of the olfactory nerve.

Commissioner Garbarini explains that, on paper, the cost of incineration is much higher than dumping. "For instance," he points out, "our records show that it costs the department about 33 cents per cubic yard to incinerate refuse. The record for landfill costs shows but nine cents for the cubic yard. Our last quarterly report shows we burned 1,562,000 cubic yards of refuse, compared with burying 2,550,274 yards of fill. Roughly, according to these figures, incineration costs are about a million dollars higher over a year's period.

"But, here's what the figures don't show. First, the cost to trucks in wear and tear, haulage and time, more than offsets this saving. Before our incinerators were shut down we had fifteen burners in strategic locations. Eleven of them are beyond rehabilitation. But that's not the point. Because there were only a handful of fillable sites left in the city, it was necessary for our trucks to haul the refuse for many miles. The result was curtailment of collection service; we couldn't have our trucks and men transporting almost 5,000 loads a day to distant points and still maintain proper pick-up service. The taxpayer then complained he wasn't getting the service for which he was paying, and he was right. The alternative was to increase manpower and equip-

ment. But that would increase the cost of collections. Nor is that all. With incinerators, trucks make short runs to the plant, mount smooth ramps, dump, and make a quick get-away for another round of collections. At the fill, trucks had to pull their way over bumps, depressions, rocks, and holes at the expense of tires, tubes, springs, bodies, engines, gas, oil, and men. When you add the daily cost of towing some 17,000 yards to the Staten Island fill—at 43 cents a cubic yard—incineration doesn't turn out to be too expensive."

The growth of the city within its restricted boundaries leaves little alternative except incineration, because there's hardly any place left to fill. Manhattan hasn't had vacant land for years. Queens, the fastest-growing borough, is just about all reclaimed. The Bronx has but two sites. Two are left in Brooklyn, and within ten years, at the present rate of fill, Staten Island will be fully reclaimed, too. The problem of the next generation will be to find a place to dump the sanitary ash from incinerators.

Some twenty years ago there was a demand for this waste for reclaiming land in the metropolitan area; but that era has passed. Manhattan alone collects 6,000 cubic yards or about 400 loads daily of clean fill. A decade hence, with no place for the disposal, this will present a problem. Despite conversion to oil heat by home owners and the use of incinerators in apartment houses, waste continues to accumulate. Sea dumping is not the solution, since the state of New Jersey secured a federal injunction against this practice ten years ago.

Some property owners oppose construction of an incinerator because of its possible appearance, but when properly landscaped, the structure is less objectionable than a housing project, whose lawns often need more attention than incinerator shrubbery.

The department's big job will occur in the next three years, after five new incinerators are completed to supplement the fourteen functioning plants. Residents will have to be reeducated in the chore of separating rubbish from garbage, and ashes from the first two forms of waste. Prior to the interruption of the incinerator program, home owners followed the practice of discarding their refuse in separate containers. When ashes were mixed with garbage, the foreman of the district soon advised the offender. Although the statute remains, apartment house superintendents and individual owners use the practical method of throwing "the works" into one receptacle. This works satisfactorily with the landfill disposal method but not so with the conventional incinerator.

Mount Vernon Would Cover Railroad Tracks

Above: The railroad tracks that cut through the business section of Mount Vernon and below, the proposed bus terminal and plaza decking over the tracks.

A PLAN for concealing and decking over railroad tracks running through the business center of Mount Vernon, N. Y., has been prepared by the Knappen Engineering Company of New York at the request of the Mayor and Common Council. It is being studied before a possible referendum is ordered by the voters of the city on the plan.

The proposal calls for covering the main-line tracks of the New York, New Haven, and Hartford Railroad for a distance of about 880 feet, from Third to Sixth Avenues. It also provides, at an estimated total cost of $2,125,000, for the construction of a new bus terminal and alterations and adaptations of present buildings and street fronts to new street grades. The assessed valuation of the adjacent property is approximately $3,600,000, and it is expected that the completed project will result in a pronounced increase in property values in this section of the city, which would help to defray the cost.

Commuters living in the suburban community are expected to approve of the plan because of its provision for a bus terminal which would have covered stairs and escalators leading directly to the railroad platforms. Immediate reaction from civic groups and merchants has also been favorable, but it is expected that the plan will undergo thorough debate before any final action is taken.

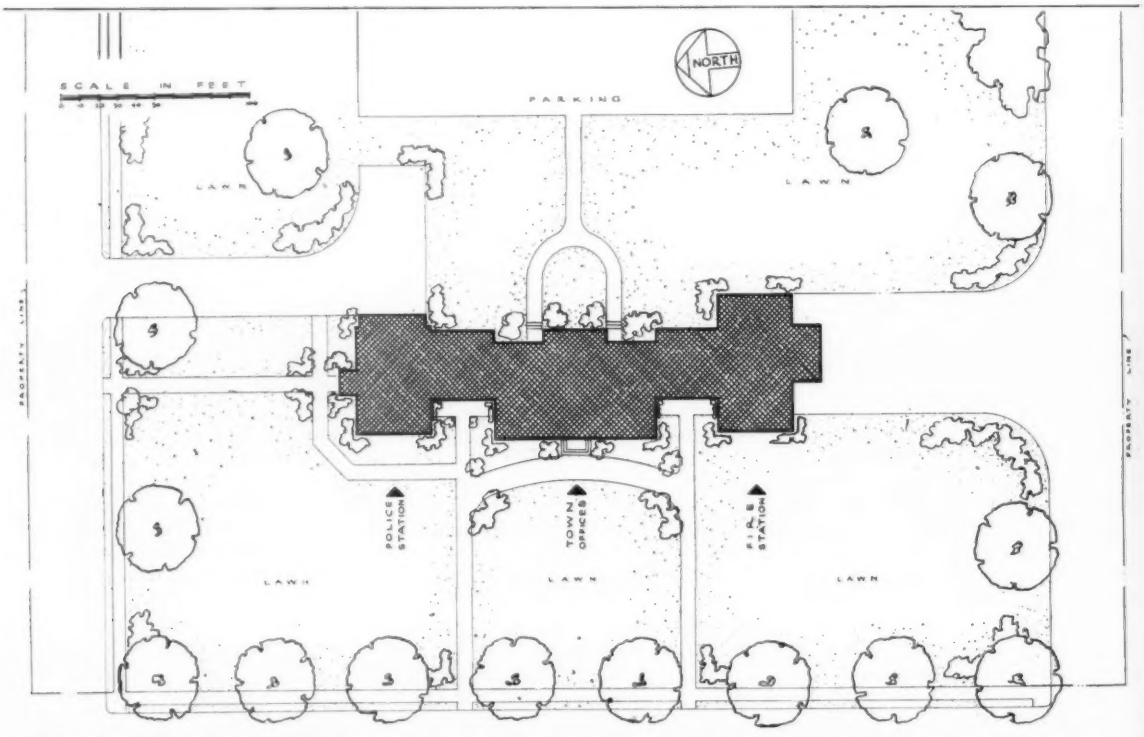
About 71,000 square feet of street surface will be added by the project to a location where it is urgently needed by the city. The proposed plan, which would allow an 18-foot clearance for train operations, was worked out with the cooperation of engineers of the railroad. Three other plans were studied, but each was found undesirable from a fiscal, municipal, or railroad point of view.

The current proposal will also make available additional parking space and improve general traffic conditions, as well as greatly beautify the area.

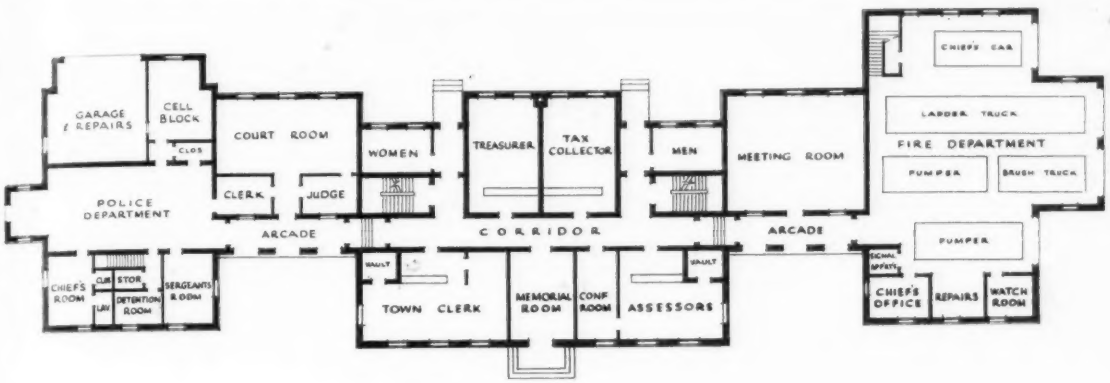
Two Small Cities Plan Multi-Function Municipal Buildings

LUDLOW, MASS., is an industrial town with 9,000 inhabitants, and city affairs are administered through twenty-one agencies whose offices are situated in rented buildings around the town. The Board of Selectmen has decided to do away with this inconvenient and costly arrangement by authorizing the construction of a municipal building to bring the town's official activities under one roof. James A. Britton, A.I.A., of Greenfield, drew the plans. The project will cost approximately $245,000. The FWA has advanced $11,500 for the preparation of plans.

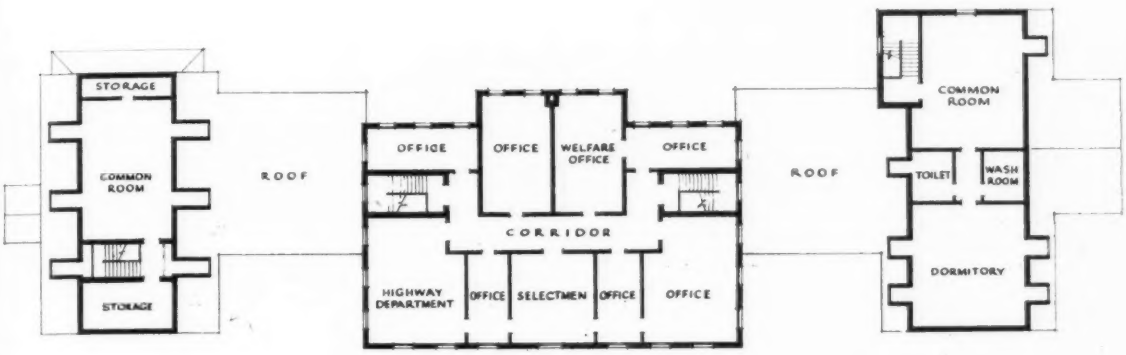
Gatlinburg, Tenn., has also decided to discontinue the use of scattered, rented, and makeshift office space in favor of one multi-function building. The State Planning Commission furnished guidance in the development of the idea. The proposed Civic Memorial Building shown at the bottom of the next page will contain city offices, a community library, a combination auditorium-gymnasium, and facilities for veterans' activities and youth recreation.



A drawing of the projected Ludlow municipal center and the general plan for buildings and grounds, showing where the police station, town offices, and the fire station will be placed.



FIRST FLOOR PLAN



SECOND FLOOR PLAN

Top: The floor plans for the Ludlow municipal center. Below: A sketch of the proposed Gatlinburg center, which will house community activities as well as civic administration offices.

Wyandotte Street being widened, and its appearance after widening and resurfacing.

Kansas City WIDENS ITS STREETS

By REED McKINLEY
Director of Public Works
Kansas City, Mo.

BY widening and improving two parallel streets for a distance of approximately one-half mile, Kansas City has provided traffic relief until such time as the Southwest Trafficway could be completed. Pavements were utilized that were approximately fifty years old.

Southwest Trafficway, which when completed will be one of the most important trafficways in the city and a part of the Federal Highway System, was planned a number of years ago. The first section was completed before the war halted construction operations. The next section consists mostly of viaduct structures over several streets and the Kansas City Terminal Railroad Yards adjacent to the Union Station. It will cost several million dollars, which will be provided jointly by the city, state and federal governments. The design plans are well along, but the acquisition of right of way and construction will require several years. In the meantime, the present traffic had to be provided for.

It was decided to widen and improve Pennsylvania Avenue from 16th Street to West Pennway, which is a part of, and adjacent to, the proposed trafficway. The old pavement was constructed in 1898 with a 4-inch base and a 3-inch asphaltic surface. This street was widened 16 feet on the east side. The old pavement and the new concrete base were surfaced with asphaltic concrete. When construction of the traffic-way is resumed, it will be necessary to close and abandon portions of this street.

In order to provide more traffic dispersement and relief, Wyandotte Street, which is four blocks east and parallel to Pennsylvania Avenue, was widened from a 36-foot to a 44-foot pavement. This pavement was constructed in 1893 and 1897. It consisted of some 4-inch and some 6-inch base with a brick surface. When the street was widened, the curbs were set back 4 feet on each side. A concrete base was placed, and the street was surfaced from curb to curb with asphaltic concrete. This becomes a permanent improvement.

The improvements were made at a cost of $103,000 by utilizing the old pavements. Had the old pavements been removed and the paving reconstructed, the cost would have been increased approximately 60%.

Pennsylvania Avenue before and after widening. Even with parked cars there is plenty of room for traffic.

Mayors Committees Urged to Spearhead Rental Housing Drive

By FRANK R. CREEDON
United States Housing Expediter

THE success of the 1947 housing program depends to a great extent on the 775 Mayors' Emergency Housing Committees in the United States. Working with state and local governments, industry, veterans organizations, labor and financial institutions, the responsibility of the committees will be to translate the achievements to date into the one basic solution to the housing shortage—more homes.

Housing needs among veterans are still acute, as every member of an Emergency Housing Committee is well aware. Numerous surveys by private and governmental agencies have shown conclusively that most veterans are unable to buy houses at today's prices. Therefore, the 1947 goal is a "huge volume of rental housing."

It is the responsibility of Mayors' Emergency Housing Committees to give leadership to community-wide rental housing and conversion capaigns which will supplement the Federal Housing Administration's efforts to interest prospective builders and investors in rental housing construction. Raymond M. Foley, Administrator of the National Housing Agency and Commissioner of the FHA, points out that "Veterans and non-veteran investors who build two-, three-, and four-family rental dwelling units are now offered the most attractive terms in the Government's history."

The rental housing drive is of importance to every citizen. Thousands of apartment units springing up all over the country will help to create steady employment for labor; will afford profitable operations for builders; will give mortgage lenders sound long-term investments, and will benefit the community through well-planned neighborhoods.

Mayors Should Lead

The Mayors' Emergency Housing Committees, working in cooperation with all elements of the community, should be the spearhead in the drive for rental housing. In the planning phases of rental housing construction, the assistance of city officials is of paramount importance.

Rental housing will be a lasting improvement if it is properly planned. Zoning regulations must be examined and the availability of utilities and community facilities studied with consideration with regard to all racial groups.

The housing program for 1947 is geared to an economy of decontrol. With materials more plentiful and with less direction exercised by the federal government, the job of increasing the total volume of housing, begun and completed, rests with the community. The Office of the Housing Expediter will back to the limit the Mayors' Emergency Housing Committees, city officials, and industry in fulfilling our national obligation to produce for the veterans the homes they need.

Dates Set for Institute of Community Leadership

FROM July 9 to 18, at Manlius School, Manlius, N. Y., will be held the third annual Institute of Community Leadership. Its objective is to analyze the prospects of the "Town of Tomorrow" and examine means for realizing its promise. It will be sponsored by the New York State Citizens' Council, the Bureau of Adult Education of the New York State Education Department, and the Committee on Community Education of the Association of Colleges and Universities of the State of New York.

From July 7 to August 2, there will also be held, under the same auspices, a Cooperative Workshop in Community Development and Education.

Full information may be secured from Milford D. Fahey, New York State Citizens' Council, 309 S. McBride St., Syracuse 3, N. Y.

Mayors' Group to Visit More Cities

Left to right: Mayors W. C. Green, Birmingham, Ala.; S. W. Church, New Rochelle, N. Y.; C. W. Leeman, Omaha, Nebr.; H. H. Edwards, Richmond, Va.; deL. S. Morrison, New Orleans, La.; G. W. Welsh, Grand Rapids, Mich. (seated); J. S. Monogan, Waterbury, Conn. (standing behind Walsh); W. E. Kemp, Kansas City, Mo.; V. J. Murphy, Newark, N. J., and H. W. Baals; Fort Wayne, Ind.

THE FIRST series of visits by the special committee of the United States Conference of Mayors* to midwestern and southern cities, was so successful that plans have now been made for an additional series of visits to cities in other sections of the country. During May, visits will be made to ten selected cities on the Atlantic seaboard, beginning at Richmond, Va., and concluding at Miami, Fla.

The main purpose of the program is to study at first hand important and pressing municipal problems. The members of the committee are also making every effort to call for equitable representation of the cities in the various state legislatures, and to emphasize the general importance of cities in the national scene.

* See page 117 of THE AMERICAN CITY for March.

A Month-by-Month Public Works Program

Jackson, Miss., gets down to details when scheduling its public works activities for the year.

DOWN in Jackson, Miss., if you want to know what projects the city plans to build during the current year and when these projects are scheduled for completion, Director of Public Works J. J. Halbert can tell you. He has worked out a schedule outlining month by month the work most needing attention. He has also included in his Public Works Program a list of "Projects for Consideration Whenever Expedient."

Here are excerpts from this schedule, showing activities scheduled for three of the twelve months and the list of projects for which no definite dates have been set.

JANUARY

Surveys and plans for paving and sanitary sewers.
Construct paving projects 104 and 105.
*Declare necessary sanitary sewer project (approx. 3 miles).
Receive bids on farm equipment for parks.
Act on paving assessments.
Act on right-of-way for street improvements.

JUNE

Complete surveys and plans on sanitary sewers.
Continue construction of paving projects 105, 106, 107, and 108.
*Sign contract, paving project 108.
*Receive bids, paving contract 109.
Begin construction of sanitary sewer project B.
Resurface Mill Street.
Order bullclam for West Jackson Landfill refuse disposal.
*Sign contract, water intake at Pearl River.
Open enlarged summer playground program.
Open Livingston Lake.
*Advertise for bids on glass house for nursery.
*Advertise for bids on new traffic lights.
Construct water mains and stubs.
Calculate assessments for paving and sewers.
Work on rights-of-way for street improvements.
*Receive bids, painting interior of city auditorium.

DECEMBER

Construct sanitary sewer project "D".
Construct paving project 109.
Construct water mains and stubs.
Assessments for paving and sewers.
Work on rights-of-way for street improvements.

* Action by City Council.

PROJECTS FOR CONSIDERATION WHENEVER EXPEDIENT

Parking Lots: (Study—Acquire Property—Build—Open).
Study City Limits Extension: (Secure proper maps, showing houses, subdivisions, streets, etc.)
Study: Water supply and distribution; sanitary and storm sewers; through street system for traffic; garbage collection and disposal; street lights; police and fire protection; schools; parks and playgrounds; zoning; power, telephones, gas.
Subdivisions: As they may come up.
Neighborhood Playgrounds: (Study — Locate—Acquire—Develop).
City Garage: Build new city garage on crematory site, in accordance with plans now on hand, or build new roof on present building, and set front back 10 feet.
Fire Department: Acquire lots behind present city garage, to Tombigbee Street. Build new central fire station (combined with police station and jail).
Police Department: Build new police station and jail (combined with fire station) on site of present city garage. Consider adding one or more floors of office space for overflow from city hall.
City Hall. Consider negotiating with Masonic bodies for third floor of city hall. Remodel interior and paint exterior.
Street Improvement: Continue to widen and open new streets, according to plan, as fast as rights-of-way can be secured.

Everyone Pays for Blight

A HARD-HITTING "Prospectus" recently issued by the South Side Planning Board of Chicago outlines the extreme urgency of attacking the evils of blighted areas. It asks for the support and cooperation of the many persons who have interests in the Chicago South Side area for the ambitious program which is being organized by the board.

The pamphlet cites various studies to show that business pays a major share of the cost of blight, and that a considerable portion of each taxpayer's bill also goes to pay for it. It declares that segregation of blight has been tried, found impractical, and is much too costly for the community as a whole. The pamphlet maintains that, instead of running away, it is cheaper to stay and fight the thing by contributing a small share towards a real community program which will arrest and cure the condition.

Blight Defined

In outlining the board's program, the "Prospectus" has this to say:

. . . Some people think of blight as a slum, a run-down residential area. A slum, however, is merely evidence of blight which is a municipal disease resulting from civic lethargy, political irresponsibility, lack of good city planning, and related causes. Blight attacks and destroys industrial and commercial areas as well as residential areas. Blight is a cancerous disease which afflicts and destroys cities and the property and investments in them. Even more important, it takes its toll of the people within those cities. The effect of the disease on the people in turn reinfects the property, business, and investments. Thus there arises a "chicken-egg" argument as to where blight starts. That the disease of blight, however, is transmitted from people to property and from property to people at an accelerating rate and with accelerating devastation to both is an acknowledged fact. There is also little argument that if blight is to be arrested and blighted areas "cured," attention must be directed to both property and people.

Cure of Blight

The founders of the South Side Planning Board recognize the many human and political obstacles in the way of solving the problem. The pamphlet, in declaring that blight has been diagnosed and eliminated time and again throughout centuries, states:

It can be avoided by the proper use of preventive medicine in the form of city planning. And it can be cured by city planning and aggressive community action. City planning, planners, maps, plans, pictures, legislation, belief, good will, and initiative are of little value unless combined in a united, aggressive, and enlightened community movement to bring about those things which are necessary to cure blight. But with a united and determined community there is no limit to the success which can be attained in the battle against blight.

ZONING *and* PLANNING NOTES

Edited by
NORMAN WILLIAMS, JR.
with the assistance of
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and
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Restrictive Covenants Directed Against Purchase or Occupancy Of Land by Negroes

NEW YORK. *Kemp* v. *Rubin*, New York Law Journal, February 14, 1947, page 617, column 4 (New York Supreme Court, Queens County).

MICHIGAN. *Sipes* v. *McGhee*, 25 North Western (2d) 638 (Michigan Supreme Court, January 7, 1947).

OHIO. *Perkins* v. *Trustees of Monroe Ave. Church of Christ*, 70 North Eastern (2d) 487 (Ohio Court of Appeals, Franklin County, October 30, 1946).

MISSOURI. *Kraemer* v. *Shelley*, 198 South Western (2d) 679 (Missouri Supreme Court, December 9, 1946).

OKLAHOMA. *Schwartz* v. *Hubbard*, 177 Pacific (2d) 117 (Oklahoma Supreme Court, January 28, 1947).

The enormous Negro migration to Northern cities in the Twentieth Century has created (or extended) an institution peculiar to the United States—the Negro ghetto. (See Abrams, *The Future of Housing*, pages 24-25, 403-405.) With relatively small and tightly constricted areas available for Negro residences, the pressure of demand has been extraordinary: and so average rents are actually higher for generally inferior accommodations. As for overcrowding, family units averaging over two persons per room are three times as frequent among Negroes as among whites. The results, in family degradation, disease, etc., are too well known to require comment. The prime device for maintaining this stranglehold has been the restrictive covenant; ironically, the decision that millions of our citizens must continue to be brought up and live under these appalling conditions has been made primarily by a series of private agreements enforced by state and federal courts. (See also Myrdal, *An American Dilemma*, pages 375-379, 527, 617-627; WPA, *Urban Housing, A Summary of Real Property Inventories; Wright, Native Son.*) These racial covenants—usually forbidding sales to or occupancy by "persons not of Caucasian race"—have been challenged on various grounds in five recent opinions.

In several of these decisions, the personal attitudes of the judges came out strongly—sympathetic to the needs of Negroes in New York, Michigan and Missouri, hostile in Ohio. In Queens, N. Y., Mr. Justice Livingston cited the Supreme Court in speaking out against distinctions based on color as contrary to American traditions and ideals. (The quotation was from Mr. Justice Murphy in *Hirabayashi* v. *United States*, 320 U. S. 81, 110, the first case on the wartime exclusion of Japanese-Americans from the West Coast). And in the Michigan and Missouri decisions, a discussion of statistics on increasing crowding in Negro residential areas showed a real awareness of the problem. In the Ohio judge's opinion, on the other hand, the attack on these racial covenants could be explained much more simply:

> "We well recognize that vociferous minorities of our citizens, instigated by politicians, not statesmen, clamor for judicial denial of private rights (i.e., to get the covenants enforced) under the guise of public welfare which is to say public policy."

The legal attack on racial covenants proceeds along several lines, from private to constitutional and even international law.

As Restrictions on Sale of Land

While the Michigan courts have long refused to enforce covenants which forbid sales of real property to Negroes, they have permitted the same result by enforcing covenants directed against occupation by Negroes. The present case followed the same pattern. While agreeing in general with this distinction, the Ohio Court held further that a typical covenant on alienation was not actually violated by a conveyance to a church corporation with a largely Negro congregation. However, the New York and Missouri opinions dismissed this argument briefly.

Void for Vagueness

In *Re Drummond Wren*, (1945) Ontario Reports 778 (Ontario Supreme Court), a covenant forbidding sales "to Jews or persons of objectionable nationality" was held void for vagueness; and the English courts have also thrown out straight anti-Semitic covenants on the same ground. However, the Michigan opinion refused to apply this argument to covenants referring to persons "not of Caucasian race". Since recent anthropological knowledge on the difficulty of identifying any "race" has not yet gained wide currency, it is not too surprising that the covenants involved here were thought to be clear enough.

Public Policy

It has been widely argued in the North that anti-Negro covenants are contrary to the public policy of each state involved, as expressed in a large number of statutes guaranteeing equality of rights in various fields. In these opinions this argument was generally rejected briefly.

In New York, a new clause in the Constitution of 1938 forbade "discrimination in . . . civil rights by any other person or by any firm, corporation or institution, or by the state." Yet, as stated in the *Kemp* opinion, several passages in the constitutional debates tend to suggest that this provision merely authorized the Legislature to define new civil rights, which may then be protected against the parties named, and so did not itself create any new rights. Moreover, the introduction into the New York Legislature during the last two years of several proposed bills, specifically outlawing racial covenants or declaring them violations of a "civil right", also suggests that the provision is not self-executing; and, since the Legislature has ignored these bills almost completely, it is now rather difficult in New York to base an argument on public policy.

Equal Protection

The most serious legal argument against the enforcement of racial covenants—and, apart from prohibitory legislation, the best chance for ending their use—arises from the provision in the 14th Amendment that "No state shall deny to any person within its jurisdiction the equal protection of the laws." The Amendment was held in 1917 to forbid zoning on a racial basis (*Buchanan* v. *Warley*, 245 U. S. 60); but in 1926 it was held in *Corrigan* v. *Buckley*, 271 U. S. 323, not to affect the enforcement of restrictive covenants. Ever since the *Corrigan* case, persistent criticism has pointed out that restrictive covenants by themselves are a nullity, and that decrees by state courts enforcing such covenants are quite as literally "state action" as any legislative steps would be. Of course, before accepting this argument, a court would have to think of the revolutionary implications of such a decision in connection with other constitutional guarantees which are expressed to limit state and federal governments only. As yet, however, no decision has considered the argument itself seriously, much less its implications. In a District of Columbia case in 1945, involving review of the *Corrigan* doctrine, the three judges of the Court of Appeals split three ways, and the Supreme Court took the unusual step of announcing the di-

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vided vote in refusing to review the problem—Justices Murphy and Rutledge wished to do so. *Mays* v. *Burgess*, 147 Federal (2d) 869, certiorari denied, 325 U. S. 868, 896. Even the rather intelligent New York opinion merely repeated general language from the *Corrigan* case that the 14th Amendment was specifically limited to "state action". Both the New York and Michigan opinions emphasized the weight of contrary precedent.

In both Michigan and Missouri, however, an extraordinary rebuttal was offered: if racial covenants were outlawed, that would deny to their signatories a fundamental privilege of all citizens, that of access to the courts. It is a little hard to know how seriously to take a suggestion that the Constitution prevents a state from denying enforcement to any form of action, once recognized. The abolition of heartbalm suits and of yellow-dog contracts, and the sharp limitation of labor injunctions, are only the most familiar examples.

Treaties

In the *Drummond Wren* case, mentioned above, enforcement of racial covenants was held to be contrary to public policy, in part because of inconsistency with the undertakings of the Canadian government in Articles 1 and 55 of the United Nations Charter. However, both the New York and Michigan Courts expressly held that international treaties do not affect the enforcement of contract rights between two citizens of the United States.

In view of the Supreme Court's refusal in 1945 to review the problem of enforcing racial covenants, the present cases reaffirming the traditional doctrines merely provide further illustrations of judicial reluctance to assume leadership in this field. As long as this tendency continues, the focus of attention may be shifted to the state Legislatures. Not much legislative action is likely to be forthcoming soon, but perhaps it is a good test of democracy to have the responsibility squarely placed there.

Paterson Visits United Nations at Lake Success

By VERA W. BEGGS
President, Women's Civic Council
Paterson, N. J.

THE first of what it is hoped will be a series of city "days" at the United Nations Headquarters at Lake Success was celebrated on April 14 by officials and citizens of Paterson, N. J. The Mayor appointed a special envoy to represent the city; WPAT, Paterson's local radio station, sent its program director; the daily and weekly papers sent their top-flight reporters and camera men, and the follow-up publicity has been consistently good. The Postmaster went along, and the Board of Education and the Recreation Commission were each represents. There were two students each from the high schools, the parochial schools, and Paterson State Teachers College. Several members of the various faculties accompanied them.

The delegation, which finally numbered 127, with sixty organizations and agencies represented, included business and professional men and women, white-collar workers, labor leaders, housewives, club women, teachers, students, ministers, and city government employes.

Paterson Day was sponsored by the the Women's Civic Council and the Council of Service Clubs. These two agencies comprise a nucleus of twenty-seven men's and women's organizations. The immediate problem of the steering committee was how to keep the group from becoming too large and unwieldy because the interest was found to be widespread.

The group arrived at Lake Success at about 10:30 in the morning and stayed most of the day. They were welcomed by James Orrick, Chief of the Division of Cooperation with Voluntary non-Governmental Organizations, under which department the program for the day had been planned. After a "briefing" by William M. Agar which presented the most important facts about the United Nations Organization, the delegates attended a meeting of the Security Council which had under discussion the subject of United States aid to Greece and walked in during Mr. Gromyko's famous speech.

After luncheon at the cafeteria, the delegates re-assembled and the program prepared for them continued. Heads of the various divisions concerned with public information explained the functions of their departments and the many ways in which they are prepared to help and advise citizens who are interested in knowing more about the United Nations. Before leaving for home the delegation attended a meeting of the Trusteeship Council.

The day proved to be of tremendous interest, and much was learned about the United Nations. A greater understanding of its problems and of its real accomplishments was obtained, and everyone was impressed by the informality and efficiency everywhere evidenced.

"Paterson Day" is only a beginning. From the first it was made clear that its purpose was to focus the attention of the community on the United Nations and to develop interest and enthusiasm for an educational project which will carry to the far reaches of the city. Already a meeting has been called by the Steering Committee to discuss the form of this project and the kind of formal organization needed to carry it out.

Two broadcasts have been scheduled over WPAT as a "Report to the Community." They will be panel discussions, the participants being chosen from among those who attended.

Several other follow-up activities have already resulted. On May 14 the Veritans will be host at a United Nations luncheon to which all the other participating organizations have been invited. Mr. Agar will be the speaker. Paterson State Teachers College has arranged two dates in May for visits by the student body to Lake Success, and the County Council of the C.I.O. it talking about a contest to find out what the "man in the street" knows about the United Nations. A trip to the United Nations at the expense of the union will be awarded to the winning twelve.

The citizens of Paterson who participated on April 14 returned home with what might almost be described as a crusading zeal—to carry to the people of our community and of other communities an understanding of the United Nations.

Little Wildernesses

PRESERVATION of unspoiled nature spots in the vicinity of urban areas is urged by Arthur E. Morgan, president, Community Service.

Speaking at one of the sessions on "Planning Man's Physical Environment," at the recent Princeton University Bicentennial, Dr. Morgan said:

For millions of years man and his immediate ancestors lived in an environment of nature. He has never succeeded in long keeping a family line alive without that association. Direct contact with nature and with natural beauty answers a deep need of his spirit, especially during the period of childhood and youth. Our civilization has been intent on destroying access to unspoiled nature. Relatively few of our young people do have such access.

Town and regional planning should have a keen interest in areas of unspoiled nature. Tamed parks are very good and necessary, but in addition there should be little wildernesses, where children especially may have freedom from regimentation, and where, as the development of the child recapitulates that of the race, he may have a suitable environment. In a large proportion of cases town and regional planners can find areas that, given time for recuperation, can again be like the primeval forest or the unspoiled river margin, or 'lonely marsh, with lone sea liberty.'

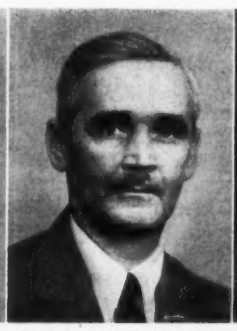
Recent City Manager Appointments

The following portraits are of city managers whose appointments have been announced in preceding issues of The American City

Allen Wilcox
Norway, Me.

R. E. Edwardson
Montrose, Colo.

B. F. Berkaw
Clifton Forge Va.



Robert A. Finlayson
Oregon City, Ore.

R. J. Eppley
Greendale, Wis.

Oren L. King
Pendleton, Ore

H. H. Burd
Mechanicsburg, Pa.

Evan Peterson
Coos Bay, Ore.

Arthur L. Dow
Paris, Tenn.

T. Edward Temple
Spartenburg, S. C.

FRANK T. ADAMS, former manager of Presque Isle, Ellsworth, Belfast, and Skowhegan, is manager of Dover-Foxcroft, Me.

HUGH BLEVINS, former city clerk, has been appointed acting city manager of Beaumont, Texas.

RUFUS BRUCE has succeeded John O. Lilly as city manager of Quitman, Ga.

BENJAMIN ELA, former manager of Eastport, Me., from 1944 to 1945, has been appointed city manager of Skowhegan, Me., following the resignation of Frank T. Adams.

COL. JOHN E. EILERTSON, a retired army officer and former city engineer at St. Helens, Ore., has been appointed first city manager of Coquille, Ore.

GARLAND P. FRANKS, former manager of Wichita Falls, and manager of Pampa, Texas, since Sept. 1945, has become manager of Sherman, Texas.

M. E. GOURLEY has succeeded Edwin E. Jenkins as city manager of Villisca, Iowa.

SETH P. JACKSON, town manager of Stonington, Me., since March 1946, will become town manager of Orono, Me.

PETER E. JANDREAU succeeds Frank G. Hartt as manager of St. Francis, Me.

ERNEST H. JOHNSON, former executive secretary of the Maine Municipal Association, has been appointed manager of Stonington, Me.

R. W. LAING, former city clerk and director of finance, has been appointed city manager of Alliance, Nebr.

DEWEY I. LEONARD, former district maintenance engineer with the State Highway Dept., has been made city manager of Johnson City, Tenn. M. U. Snoderly, manager of Johnson City, Tenn., since 1943, has resigned to become director of service and airport manager at Knoxville.

EDWARD C. MONAHAN, formerly with the R.F.C. Office, has been appointed town manager of Norwood, Mass.

ROBERT T. PALMER, assistant engineer, South Haven, has become city manager of St. Johns, Mich. Theodore Townsend, city manager of St. Johns, Mich., since 1919, will become city engineer.

LAWRENCE PEABODY, former manager of Limestone, is now manager of Dyer Brook and Oakfield, Me.

BYRON J. ROCKWOOD, former manager of Hazel Park, Mich., from 1942 to 1944 and more recently with the City Planning Commission of Detroit, has been appointed first city manager of Grand Forks, N. D.

HENRY ROLFES, JR., former assistant in the finance department of Eugene, Ore., has been appointed manager of Sylvan Lake, Mich.

ELDON H. SHUTE, present manager of Patten and Staceyville, Me., has been appointed manager of Freeport, Me.

CHARLES W. SNELL was appointed first town manager of Madison, Me.

WILLIAM G. STOVER, has been appointed first town manager of Monmouth, Me.

LYLE C. TOWNE becomes first manager of Monson, Me.

IRVING C. TRUFANT, manager of Dover-Foxcroft since 1941, has moved on to Norridgewock, Me.

CHARLES H. TUCKER, town manager of Freeport, Me., since April 1946, has been appointed manager of Oakland, Me.

BERNARD P. WESTKAMPER, assistant engineer for the East Bay Municipal Utility District, has been appointed city manager of Delano, Calif.

BURTON L. WINSLOW, former manager of Stoughton, Mass., and Bennington, Vt., has become first manager of Brandon, Vt.

CLARENCE E. RIDLEY,
Executive Director,
International City Managers' Association,
Chicago, Ill.

Tax Bills Made Like Newspapers

W. RAYMOND WHITLEY
Comptroller, City of Rochester, N. Y.

A NEW tax-billing procedure has been instituted by the city of Rochester, N. Y. It becomes effective with the tax bills for the year 1947, and with assessment books and tax rolls for 1948, to be prepared this year.

The new tax bill will save money and time. It is designed to run off as a continuous form, somewhat like a newspaper. Purchased in printed form and with perforations and punchings, the new bills cost the city only $350 compared with $1,200 for the old forms. The completed bills are produced in continuous form by International Business Machines' electrical accounting machines, as the first photograph shows.

The bills are then put through the Burster-Imprinter machine. In a single operation this machine imprints on the reverse side of the bill certain budget and State Aid information as required by law, cuts one pin-feed edge from the continuous form, and breaks the tax bills into individual bills at the rate of 15,000 per continuous operation-hour. During the research and planning for the new system, such a machine was found to be in use only by such industrial firms as The Republic Steel Corporation and Eastman Kodak Company. The machine and the forms were furnished by the Standard Register Company, Dayton, Ohio.

Producing tax-bills in continuous form. The Burster-Imprinter machine turns these forms into individual bills at the rate of 15,000 per hour and prints contain tax data on the back of the bills.

Not a Single-Purpose Unit

It will be of interest to know that the Burster-Imprinter is not a single-purpose unit. For example, through use of this machine it is possible to burst continuous-form payroll checks each week in about fifteen minutes' time. Formerly, this operation was done manually and required about five man-hours per week. The bursting feature will also be used in preparing the W-2 income tax forms. In addition, it is planned to use the unit in bursting continuous-form water bills which are to be put in use shortly.

A feature of the new tax bill is that the amounts of the quarterly installments are pre-printed on the taxpayer's receipt. With the bill, the cashier in the city treasurer's office has only to receipt the bill. On the old tax bills, the cashier was required to write in the amount of each payment and receipt the bill as well. It is expected that the cashiers can handle three persons in the time that it formerly took to serve two taxpayers.

Tax Delinquency Feature

The new bill will also contain a statement of tax delinquency. Taypayers with tax delinquencies will be notified of them on the regular tax bill in a small block in the center of the bill. A large "D" will mark any delinquent account. This feature is important because of the larger number of property transfers in recent years, and because most tax delinquencies arise from the fact that the taxpayer is unaware that at some time or other the taxes on his property have not been paid. This procedure, which is common in private business, is new insofar as government work is concerned. It is good business from the viewpoint of both taxpayers and municipal administration.

Window Envelope

On the back of this new tax bill, there is a space for the correct name and address of the taxpayer. This is so arranged that when a receipted bill is being sent out to a taxpayer who has made his remittance by mail, the receipt can be sent in a window envelope, thus saving the expense of typing out an address on an envelope. A simple matter, perhaps, but an important one when you consider that this transaction happens four times a year between the city treasurer's office and each property owner.

Water and Sewerage Charges to Suburbs

Suburbs of a growing number of cities are being charged increased sewer and water rates to make them either bear their share of service expenses or furnish their own facilities, according to the International City Managers' Association.

Information gathered for the 1947 Municipal Yearbook discloses that of 459 cities over 10,000 reporting, 257 now charge higher rates outside than inside the city. Of 172 cities providing sewerage service to suburbs, 132 charge higher rates for users outside the city limits.

Outside water rates are double the city rates in Buffalo, Fort Worth, and Nashville. Surburban users pay 50% more than city dwellers in Flint, New Orleans, and Syracuse; 15% more in San Francisco, and Wichita; 10% more in Dayton and Reading.

Among cities of 50,000 to 100,000 population, 27 cities charge higher water rates outside the city and 15 charge the same. Outside water service charges are double the inside rate in Augusta, Durham, N. C., and Saginaw, Mich. In the 25,000 to 50,000 population group, 129 of 258 cities charge higher water rates to suburbanites than city dwellers.

Sewerage service charges follow the same pattern, with 32 cities over 100,000 charging out-of-city users for the service. Detroit charges outsiders twice as much for sewerage service as it does city customers; while Flint charges 50% more and Columbus 10% more.

In Atlanta, the county charges out-of-city sewerage customers and contributes the revenue to city sewage disposal costs. Philadelphia applies the same rate to suburban users as used inside the city, but adds an additional charge to suburban bills based on metered measurements of sewage.

LEGAL NOTES *and* DECISIONS

Prepared by
NATIONAL INSTITUTE
of
MUNICIPAL LAW OFFICERS

CHARLES S. RHYNE
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Airports—Refusal of Approval by Airports Commission—Validity

Where Metropolitan Airports Commission refused approval to operation of two airports within 25 miles of city hall of first class cities, under statute requiring approval of such installations by commission, held that evidence supported refusal because of danger to existing field and refusal of approval does not contravene license issuing authority of state commissioner of aeronautics.

State ex rel, Interstate Air-Parts v. *Minneapolis-St. Paul Metropolitan Airports Commission*, 25 N. W. (2d) 718 (Minn., Jan. 4, 1947).

Annexation—Appeal from Ordinance—Jurisdiction of Court

Where third class city law provided for appeal from annexation ordinance to court of quarter sessions and residents of annexed territory appealed to such court, held that such residents were estopped from later questioning jurisdiction of court.

In re Annexation of Portion of Versailles Township; Appeal of Johnson; Appeal of Fawcett; 50 Atl. (2d) 689 (Pa., Jan. 28, 1947).

Assessments—State Preemption of Field—Electric Companies

Where state commission assessed electric company's property located in more than one county, held that city could not assess portion of property located within such city in view of exclusive authority of state commission to assess property as single operation.

Mississippi Power Company v. *City of Laurel*, 28 So. (2d) 750 (Miss., Jan. 13, 1947).

City Clerk—Compatability With Position of Purchasing Agent

Where evidence showed that there was no incompatability between position of city clerk and city purchasing agent of city of Torrance, held that compensation could be paid to clerk for performance of duties as city purchasing agent.

Raymond v. *Bartlett*, 175 Pac. (2d) 288 (Cal. App., Dec. 13, 1946).

City Employes—Retirement and Subsequent Reemployment—Salary Requirements

In action for modification of salary, held that city employe of city of New York retired for ordinary disability and subsequently restored to duty in similar position was entitled to at least same salary as that received at time of separation from service.

Stewart v. *O'Dwyer*, 66 N. Y. S. (2d) 511 (N. Y. App. Div., Dec. 13, 1946).

Electric Utilities—City Consent to Use Streets—Revocation

Where city consented to exercise of rights of electric utility to use streets for power lines, held that town had no authority thereafter to require removal of power lines by ordinance.

Gulf States Utilities Co. v. *Incorporated Town of Hempstead*, 198 S.W. (2d) 620 (Tex. Civ. App., Dec. 5, 1946). *Reh. den.* Jan. 9, 1947.

Firemen—Compulsory Retirement at Age of Seventy

In mandamus to compel retirement of firemen of city of Baltimore, held that ordinance giving option to contribute to pension system and to be retired at age of seventy did not require that they be retired merely because they reached such age.

Travers v. *Fogarty*, 50 Atl. (2d) 238 (Md., Dec. 12, 1946).

Liquor—Drinking Prohibited in Public Places—Hotels

In conviction for drinking intoxicating liquor in public place, held that a hotel was a "public place" within the meaning of the ordinance.

State v. *Musser*, 176 Pac. (2d) 199 (Idaho, Dec. 14, 1946).

Liquor—Power of City to Limit Number of Licenses

Under applicable statutes held that a city has power to limit number of places where beer may be sold but has no power to limit number of retail liquor licenses which may be issued to dealers in the city.

Stephens v. *City of Great Falls*, 175 Pac. (2d) 408 (Mont., Dec. 10, 1946).

Motor Vehicles—Similar Regulation by City and State

Where statute required identification upon accident resulting in injury or death to persons or property, held that ordinance of city with same requirements was not invalid because of similar provisions since state had not evidenced intention to preempt field of motor vehicle regulation.

City of Sioux Falls v. *Peterson*, 25 N. W. (2d) 556 (S. D., Dec. 30, 1946).

Noise—Ordinance Prohibiting Sound Trucks Valid

In conviction for violation of ordinance of city of Trenton prohibiting operation of sound truck, held that such ordinance is not invalid as invasion of constitutional right of freedom of speech and freedom to communicate information and opinions to others.

Kovacs v. *Cooper*, 50 Atl. (2d) 451 (N. J. Sup. Ct., Dec. 30, 1946).

Ordinances—Penal Provisions Different from General Law

In conviction for violation of ordinance, held that section of city of Boise charter establishing different penalties from those in general law applying to unchartered cities is not invalid as a local or special law for the punishment of crimes.

State v. *Romich*, 176 Pac. (2d) 204 (Idaho, Dec. 18, 1946).

Ordinances—Publication Requirement

Where ordinances were required to be published three times before effective, held that taxpayers were entitled to enjoin officers from paying pension to Commissioner of Public Safety on ground that ordinance increasing salary and placing him on pension had not been published.

Morris v. *City Council of Augusta*, 40 S. E. (2d) 710 (Ga., Nov. 13, 1946). *Reh. den.* Dec. 2, 1946.

Physicians—Construction of Municipal Building for Use by—Ultra Vires Act

In suit for injunction restraining construction of building under ordinance authorizing construction of building on municipal hospital grounds to furnish appropriate offices for use in operation of hospital, held that a contract for construction of municipal building devoted to use of physicians in their private practice was beyond terms of ordinance authorizing construction of building on municipal hospital grounds to furnish appropriate offices for use in operation of hospital, and hence was ultra vires and void. *Hamilton* v. *City of Anniston*, 27 So. (2d) 857 (Ala., Nov. 21, 1946).

Policemen—Reinstatement After Dismissal for Failure to Conduct Hearing

In mandamus to compel reinstatement as public officer, held that policeman who was not given hearing within seventy-two hours after notice of suspension as provided by law, but later, would be entitled to reinstatement.

Henderson v. *Mayor of Medford*, 70 N. E. (2d) 712 (Mass., Jan. 10, 1947).

Policemen—Employment After Age of 50

In action involving validity of employment of policeman, held that reemployment of individual by city of Winchester as police captain at the age of fifty-seven dropped from employment four years previously was "appointed" and not "reinstated," thereby rendering invalid the appointment under the statute prohibiting appointment of policemen over fifty.

Buckner v. *Quisenberry*, 198 S. W. (2d) 211 (Ky., Nov. 15, 1946). *Reh. den.* Jan. 14, 1947.

Sidewalks—Excessiveness of Verdict for Injuries

In negligence action, held that $5,000 damages for leg injuries to woman cook caused by fall into depression in sidewalk was not excessive.

Clader v. *City of Neosho*, 198 S. W. (2d) 523 (Mo. App., Dec. 5, 1946). *Reh. den.* Jan. 7, 1947.

Street Cars—Passing in Opposite Directions—Precautionary Measures

In action for personal injuries sustained when plaintiff was struck by street car, held that ordinance of City of St. Louis providing that when a street car "is about to pass another car going in the opposite direction at a point where it is permissible to pasengers to alight from or to board a car, said car shall proceed at a rate of speed not over three miles an hour and . . . shall ring a warning gong or bell" is not so indefinite, uncertain, or unintelligible as to be invalid. *Marczuk* v. *St. Louis Public Service Co.*, 196 S.W. (2d) 1000 (Mo., Oct. 14, 1946.

Taxation—Fixtures in National Bank

In action for refund of taxes paid, held that vault door and frame installed by national bank in leased building was real property and subject to taxation, and tellers' cages, counters, partitions and coupon booths were taxable as improvements to realty.

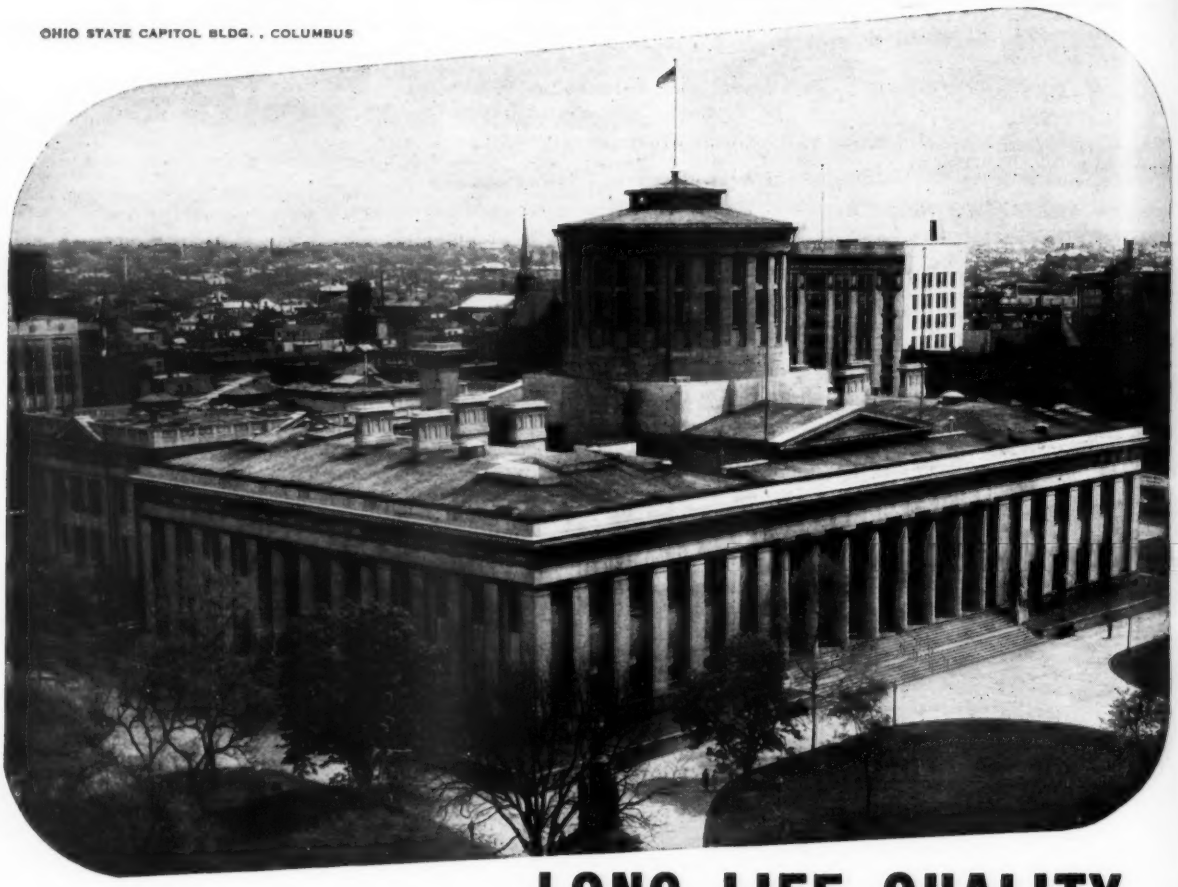
Trabue Pittman Corp. v. *Los Angeles County*, 175 Pac. (2d) 512 (Cal., Dec. 10, 1946).

Workmen's Compensation—Death While Polishing Automobile

In workmen's compensation action, held that death of road supervisor from heart attack occurring while polishing private automobile was insufficient to establish compensability of death.

Brighton v. *Borough of Rumson*, 50 Atl. (2d) 485 (N. J. Sup. Ct., Jan. 3, 1947).

OHIO STATE CAPITOL BLDG., COLUMBUS



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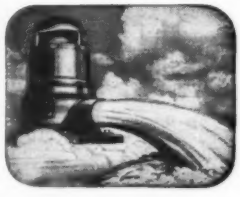

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Conventions—When and Where

Conventions listed this month for the first time are indicated by an asterisk (*)

May 7-9—Indianapolis, Ind.
AMERICAN WATER WORKS ASSOCIATION—INDIANA SECTION. Annual Meeting (Antlers Hotel). Sec.-Treas., Charles Bechert, Room 200, Underwriters Building, Indianapolis, Ind.

May 15-16—Washington, D. C.
MARYLAND-DELAWARE WATER AND SEWERAGE ASSOCIATION. Annual Meeting (Hamilton Hotel.) Sec., E. Virginia Gipe, 2411 N. Charles St., Baltimore 18, Md.

May 15-16—Port Angeles, Wash.
ASSOCIATION OF WASHINGTON CITIES. Annual Meeting. Acting Sec., Joshua H. Vogel, University of Washington, Seattle, Wash.

May 15-17—Victoria, B. C., Canada
AMERICAN WATER WORKS ASSOCIATION—PACIFIC NORTHWEST ASSOCIATION. Annual Convention (Empress Hotel). Sec.-Treas., Fred Merryfield, Department of Civil Engineering, Oregon State College, Corvallis, Ore.

May 18-20—Philadelphia, Pa.
PENNSYLVANIA STATE ASSOCIATION OF TOWNSHIP COMMISSIONERS. Annual Conference (Benjamin Franklin Hotel). Sec., H. A. Fritschman, Havertown, Pa.

May 21-22—Lafayette, Ind.
INDUSTRIAL WASTE UTILIZATION CONFERENCE. Annual Conference (Purdue Memorial Union Building). Chairman, D. E. Bloodgood, Purdue University School of Engineering, Lafayette, Ind.

May 21-23—Cleveland, Ohio
AMERICAN PUBLIC POWER ASSOCIATION. Annual Convention (Hollenden Hotel). Gen. Mgr., Carlton L. Nau, 1129 Vermont Ave. NW, Washington 5, D. C.

May 22-23—Grenada, Miss.
MISSISSIPPI MUNICIPAL ASSOCIATION. Annual Convention (Grenada Hotel), Exec. Sec., C. D. Ross, 610-1st Federal Savings and Loan Building, Jackson, Miss.

May 26-29—Chicago, Ill.
NATIONAL FIRE PROTECTION ASSOCIATION. Annual Meeting (Palmer House). Managing Director, Percy Bugbee, 60 Batterymarch St., Boston, Mass.

May 26-29—New York, N. Y.
MUNICIPAL FINANCE OFFICERS' ASSOCIATION OF UNITED STATES AND CANADA. Annual Meeting (Hotel Pennsylvania). Exec. Sec., Miner B. Phillipps, 1313 East 60 St., Chicago 37, Ill.

May 26-27—Albany, N. Y.
NEW ENGLAND SEWAGE WORKS ASSOCIATION. Joint Spring Meeting with NEW YORK SEWAGE WORKS ASSOCIATION (Hotel Ten Eyck). Sec.-Treas., W. E. Merrill, 511A State House, Boston, Mass.

May 27-28—Asbury Park, N. J.
AMERICAN SHORE AND BEACH PRESERVATION ASSOCIATION. Annual Convention (Berkeley-Carteret). Sec.-Treas., Peter J. Gannon, 1060 Broad St., Newark 2, N. J.

June 4-6—Saratoga Springs, N. Y.
NEW YORK STATE ASSOCIATION OF CITY AND VILLAGE CLERKS. Annual Meeting. Sec., B. Nedd Sparks, Tupper Lake, N. Y.

June 5-6—Estes Park, Colo.
COLORADO MUNICIPAL LEAGUE. Annual Convention (Estes Park City Hall). Exec.-Sec., H. A. Storey, 327 Nortin Library, Boulder, Colo.

June 11-13—Duluth, Minn.
LEAGUE OF MINNESOTA MUNICIPALITIES. Annual Meeting (Hotel Duluth). Exec. Sec., C. C. Ludwig, 15 University of Minnesota Library, Minneapolis 14, Minn.

June 11-13—Yankton, S. D.
LEAGUE OF NORTH DAKOTA MUNICIPALITIES. Annual Meeting (Charles Gurney Hotel). Sec., R. D. Falk, Vermillion, S. D.

***June 16-18—Traverse City, Mich.**
MICHIGAN ASSOCIATION OF CHIEFS OF POLICE. Annual Meeting (Park Hotel). Exec. Sec., E. B. Wilson, Detroit-Leland Hotel, Detroit 26, Mich.

June 18-20—Buffalo, N. Y.
NEW YORK STATE CONFERENCE OF MAYORS AND OTHER MUNICIPAL OFFICIALS. Annual Meeting (Hotel Statler). Exec.-Sec., Morgan Strong, 6 Elk St., Albany, N. Y.
MUNICIPAL ENGINEERS ASSOCIATION. In conjunction with New York State Conference of Mayors. Annual Meeting. Sec.-Treas., Raymond W. Murphy, 61 Old Post Road, Rye, N. Y.

June 19—Newark, N. J.
AMERICAN WATER WORKS ASSOCIATION. NEW JERSEY SECTION. Outing. Sec., C.. B. Tygert, Box 178, Newark 1, N. J.

***June 20-21—Duluth, Minn.**
CENTRAL STATES SEWAGE WORKS ASSOCIATION. Annual meeting (Spalding Hotel). Sec., Paul W. Reed, 1098 W. Michigan St., Indianapolis 7, Ind.

June 23-25—Cincinnati, Ohio
NATIONAL ASSOCIATION OF TAX ADMINISTRATORS. Annual Meeting. Exec. Sec. Charles F. Conlon, 1313 E. 60th St., Chicago, Ill.

***July 7-10—Toronto, Canada**
SMOKE PREVENTION ASSOCIATION OF AMERICA. Annual Meeting (Royal York Hotel). Sec., Frank A. Chambers, 139 N. Clark St., Chicago, Ill.

***July 7-11—Cincinnati, Ohio**
NATIONAL EDUCATION ASSOCIATION. Annual Meeting. Exec. Sec., Willard E. Givens, 1201 Sixteenth St., NW, Washington, D. C.

***July 6-12—Paris, France**
SEVENTH INTERNATIONAL CONGRESS OF LOCAL AUTHORITIES. Sec. General, M. Emile Vinck, 5 Rue de Regence, Brussels. American Sec., Earl D. Mallery, 1313 East 60th St., Chicago 37, Ill.

July 8-11—Winnipeg, Canada
CANADIAN FEDERATION OF MAYORS AND MUNICIPALITIES. Annual Conference (Hotel Royal Alexandria). Exec. Director, Miss J. Allan, Mount Royal Hotel, Montreal, Quebec.

July 21-23—Wilkes-Barre, Pa.
PENNSYLVANIA CHIEFS OF POLICE ASSOCIATION. Annual Meeting (Hotel Sterling). Sec., F. B. Titus, 80 Price Ave., Lansdowne, Pa.

July 21-23—Salt Lake City, Utah
NATIONAL ASSOCIATION OF COUNTY OFFICIALS. Annual Convention (Hotel Newhouse). Sec.-Treas., George F. Simmons, Ogden, Utah.

July 21-25—San Francisco, Calif.
AMERICAN WATER WORKS ASSOCIATION AND THE FEDERATION OF SEWAGE WORKS ASSOCIATIONS. Annual Conference. Sec., A.W.W.A., H. E. Jordan, 500 Fifth Ave., New York, N. Y. Sec., F.S.W.A., W. H. Wisely, 325-26 Illinois Bldg., Champaign, Ill.

July 22-24—Elmira, N. Y.
NEW YORK STATE ASSOCIATION OF CHIEFS OF POLICE. Annual Meeting (Mark Twain Hotel). Exec.-Sec., R. W. Morris, Box 203, Capital Sta., Albany 1, N. Y.

Aug. 18—New York, N. Y.
EASTERN ASSOCIATION OF FIRE CHIEFS. Annual Convention (Pennsylvania Hotel). Sec., Chas. E. Clark, Box 271, Wayne, Pa.

Aug. 19-22—New York, N. Y.
INTERNATIONAL ASSOCIATION OF FIRE CHIEFS. Annual Convention (Pennsylvania Hotel). Exec.-Sec., Daniel B. Tierney, 8 Robbins Road, Arlington, Mass.

***Aug. 27-29—State College, Pa.**
PENNSYLVANIA WATER WORKS OPERATORS' ASSOCIATION. Annual Meeting. Sec., I. M. Glace, Harrisburg, Pa.

***Sept. 8-10—New York, N. Y.**
NATIONAL INSTITUTE OF GOVERNMENT PURCHASING. Annual Conference (Hotel Pennsylvania). Exec. Dir., Albert H. Hall, 730 Jackson Place, NW, Washington 6, D. C.

***September 17-19—Atlanta, Ga.**
THE GEORGIA WATER AND SEWAGE ASSOCIATION. Annual meeting of Short School for Plant Operators (School of Technology). G. R. Frith, Department of Public Health, Atlanta, Ga.

***Sept. 19-20—Superior, Wis.**
WISCONSIN CHIEFS OF POLICE ASSOCIATION. Annual Convention (Hotel Androy). Exec. Sec. Walter H. Wagner, Sheboygan, Wis.

***September 21-25—Duluth, Minn.**
INTERNATIONAL ASSOCIATION OF CHIEFS OF POLICE. Annual Conference (Duluth Hotel). Exec. Sec. Edward J. Kelly, 918 F. St., NW, Washington, D. C.

***Oct. 13-17—New York, N. Y**
NATIONAL RECREATION ASSOCIATION. Annual Meeting (Hotel New Yorker). Sec., Howard Braucher, 315 Fourth Ave., New York 10, N. Y.

***Oct. 16-17—Ocean View, Va.**
VIRGINIA INDUSTRIAL WASTES AND SEWAGE WORKS ASSOCIATION. Annual Meeting (Nansemond Hotel). Sec., A. H. Passler, 815 East Franklin St., Richmond 19, Va.

The Municipal Bond Market

Some sales of new issues reported in recent issues of *The Bond Buyer*:

Amount	Borrower and Purpose	Rate (%)	Term (Years)	Basis (%)
$600,000	Sioux City, Ia., Ind. Sch. Dist.	1	5-10 Ser.	.996
123,500	Troy, N. Y., Street Improvement and Equipment	1	1.66 Avg.	.972
12,000	Brookhaven, N. Y., North Patchogue Fire Dist.	1.20	1-10 Ser.	1.17
88,000	Greenfield, Mass., Water Supply	1.25	7.83 Avg.	1.23
246,000	Milford, Conn., School of 1947	1.40	9.5 Avg.	1.34
9,000	North Wilkesboro, N. C., Street	1.25	3-5 Ser.	1.049
16,000	Thomasville, N. C., Park and Playground	1.50	9-12 Ser.	1.9169
2,625,000	Los Angeles, Calif., Municipal Airport	1.50	1-7 Ser.	1.5559
110,000	Paramus, N. J., Sch. Dist.	1.70	11 Avg.	1.681
10,000	Fredericksburg, O., Street Improvement	1.75	6 Avg.	1.67
420,000	San Leandro, Calif., Sewer, 1947	1.75	7.66 Avg.	1.9417
160,000	Modesto, Calif., Municipal Improvement, Series A	2	24.66 Avg.	1.892
225,000	Wickliffe, Ohio, Local Sch. Dist.	2.25	10.75 Avg.	2.185
250,000	Euclid, Ohio, Water Main Construction	2.50	13.66 Avg.	2.30
5,000	St. Clair Shores, Mich., Sewer, Special Assessment District No. 7	3	4.33 Avg.	2.6706
45,000	Lenoir City, Tenn., Funding	3.25	10.5 Avg.	3.218

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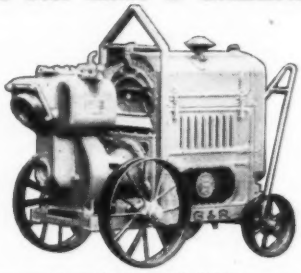
Smallest of more than 50 models of Gorman-Rupp centrifugal pumps, the Midget can do hundreds of handy pumping jobs. Small, compact – weighs only 60 pounds complete – easily handled by one man. Automatic self-primed – when the motor starts, the water starts. Streamlined interior can't clog. Pumps more water for its size than any other pump on the market.

Whatever size your pumping job may be, up to 125,000 gals. per hour, your best choice is Gorman-Rupp.



Gorman-Rupp Model 1602 (90M) pump, capacity 1,500 GPM at average total head.

HERE'S A GOOD BUSINESS FOR SOMEONE IN YOUR TOWN!

Public Health Officials - Show this Announcement to Sanitary Service Operators in Your Community!

The New Odorless Sanitary Cleaner is modern apparatus for cleaning septic tanks, vaults and cisterns. It is complete in every respect. It is shipped ready to mount on standard truck chassis, 158 to 161 inches length. It is built by the Gorman-Rupp Company, a leader in the pump industry.

This O. S. C. unit is approved by public health officials because it eliminates old-style, makeshift equipment – often open tanks, diaphragm hand pumps and even shovels. With an O. S. C., cleaning the septic tank is as casual and efficient as any other household service.

The O. S. C. has a powerful Gorman-Rupp Centrifugal Sewage Pump of self-priming design. Septic tanks of 500 gallon size are cleaned in 15 minutes; 1,000 gallon size in 20 minutes. A 25,000 gallon septic tank was cleaned in just 10 hours.

It's water-tight, fly-proof and entirely enclosed. A boon to operators now in business. A real opportunity for the veteran wanting his own business. Buy an O. S. C. unit under the G. I. Bill of Rights.

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New Publications

Municipal *and* Civic

Sewage Treatment

SEWERAGE AND SEWAGE TREATMENT—*By Harold Babbitt, Professor of Sanitary Engineering, University of Illinois, Urbana, Ill. Published by John Wiley and Sons, New York. Sixth Edition.* 692 *pp.* $6.50.

This newest edition of the well-known, authoritative text on sewerage and sewage treatment brings up to date those developments in the field that characterize wartime practice. It also reanalyzes the hydraulics of sewerage, outlining a rational method of determining runoff. It goes into more detail when discussing high rate filters, contact aerators, and similar advanced treatment processes.

Water and Sewage Tests

STANDARD METHODS FOR THE EXAMINATION OF WATER AND SEWAGE—*Published by the American Public Health Assoc.,* 1790 *Broadway, New York* 19, *N. Y., and the American Water Works Assoc.,* 500 *Fifth Ave., New York, N. Y. Ninth Edition.* 286 *pp.* $4.00.

This text is used by most laboratory technicians in the sanitary engineering field. Edited by Dr. George E. Symonds, Associate Editor of *Water and Sewage Works,* it represents the joint efforts of leaders in the sanitary engineering field to bring up to date the methods of examining water and sewage, thus enabling laboratory men generally to have a common method of comparing the results of their studies.

Hospital Report

HOSPITAL RESOURCES AND NEEDS—*The Report of the Michigan Hospital Survey.* 1946. *Published by the W. K. Kellogg Foundation, Battle Creek, Mich.* 172 *pp.*

The hospital survey committee has collected a mass of data about the people of Michigan and the hospital facilities they use. The report includes information about the role and function of the general hospital, its organization and administration, health service personnel and facilities, and a plan for hospital care in Michigan.

The facts and recommendations in this report can serve as a guide to individuals and groups who have responsibility for extending hospital care.

Concrete Standards

A. S. T. M. STANDARDS ON CONCRETE AND CONCRETE AGGREGATES—*By A. S. T. M. Committee C-9. American Society for Testing Materials.* 1916 *Race St., Philadelphia* 3, *Pa.* 1947. 149 *pp.* $2.00.

This book gives some fifty-three specifications and test methods covering cement, concrete reinforcement, preformed expansion joint fillers, and sieves for testing purposes. Such topics as sieve analysis, soundness of aggregates, specific gravity, and mortar-making properties are covered. Four specifications of cement are given. Three specifications relate to concrete curing materials, and there is a test for water retention efficiency of methods for curing concrete.

City Sketches

CITIES OF AMERICA—*By George Sessions Perry. Whittlesey House, McGraw-Hill Book Company, Inc., New York* 18, *N. Y.* 1947. 287 *pp.* $3.50.

The high spots and outstanding aspects of urban life in twenty-two of the nation's cities are reprinted in this book from articles which have appeared in *The Saturday Evening Post.*

The chapters attempt to describe the "flavor" and "feel" of each of the cities. The author easily integrates the traditions, present situations, and future hopes of the areas he surveys. There is little attention given in the book to governmental problems or administrative affairs.

Planning Philosophy

AMERICAN PLANNING, PAST—PRESENT—FUTURE—*By Cleveland Rodgers. Harper and Brothers, 49 E. 33rd St., New York* 16, *N. Y.* 1947. 290 *pp.* $3.00.

Primarily a philosophical work, this book traces the significance of planning in our national life, from the point of view of a young aviator, who, in flying over the country, sees delineated in its topography much of the history of public planning.

Mr. Rodgers, who has written extensively in the field and who has been a member of the City Planning Commission of New York since 1938, discusses the role of government in a democratic society. He shows that the current emphasis on social and economic planning not only has sound economic roots but is essential if the country is to meet its present problems of over-all development.

Some planners who believe that the creation of citizen interest and participation is one of the most fundamental of planning elements may take exception to Mr. Rodgers' interpretation of the subject. Pointing out that there is no lack of technical skills or resources to build a better world, he writes: "Planning, being so largely political, must start with lawmaking, after people make up their minds as to what they want done." There are many who would say that it is the duty of a planner to arouse the citizen to the fact that many of the problems in his environment can be solved through planning, and that it is also the planner's duty to present alternatives from which people *can* make up their minds.

The book is interesting because of its emphasis on the fact that public planning has never been absent throughout the history of the country.

Community Welfare

PUBLIC AGENCY-COUNCIL RELATIONSHIPS—*Health and Welfare Planning Department, Community Chests and Councils, Inc.,* 155 *E. 44th St., New York* 17, *N. Y.* 1946. 47 *pp. Single copies, 75 cents.*

The study is focussed on the necessity for coordination between public and private welfare agencies and programs. A detailed presentation is given of general principles which seem to be basic to good council-public welfare relationships, illustrated with specific examples. Another section shows the statistical findings of the extent and nature of such participation.

A summary is included which, it is hoped, will stimulate discussion and an examination of local practice by both public officials and community welfare councils.

Juvenile Delinquency

RECOMMENDATIONS FOR ACTION—*By the Panels of the National Conference on Prevention and Control of Juvenile Delinquency. United States Printing Office, Washington* 25, *D. C.* 1947. 136 *pp.* 30 *cents.*

Originating under the direction of the Department of Justice, this pamphlet contains the summary recommendations of a conference on juvenile delinquency held in Washington in November 1946.

Among the fifteen panel reports presented are excellent suggestions on community coordination; the role of police in juvenile delinquency; recreation for youth; housing, community development, and juvenile delinquency; youth and citizen participation; child-guidance clinics.

Recreation Study

THE ROLE OF THE STATES IN RECREATION—*By Louise A. Fietz. Bureau of Public Administration, University of California, Berkeley, Calif.* 1947. *Mimeo.* 29 *pp.*

This brief review describes existing recreation services now provided by state government agencies, and outlines proposals for a California state recreation agency.

Administrative Philosophy

REFLECTIONS ON PUBLIC ADMINISTRATION.—*By John Merriman Gaus. University of Alabama Press, University, Ala.* 1947. 149 *pp.* $2.00.

Consisting mainly of a series of lectures delivered in the Southern Regional Training Program in Public Administration at the University of Alabama in 1945, this little book represents a penetrating and thoughtful contribution to the growing field of public administration.

The author treats mainly of the philosophical aspects of the subject, calling attention to the need for providing a philosophical framework for public administration, if it is to keep itself free from the shackles of sheer vocationalism.

Uniform Local Reports

LOCAL GOVERNMENT IN MARYLAND—*Maryland State Planning Commission,* 104 *Equitable Bldg., Baltimore* 2, *Md. Publication No.* 48. 1947. *Appendices.* 16 *pp.*

The status of current reporting by local governmental units of their public revenues and expenditures is of little practical value for comparative study or analysis, this pamphlet notes. More uniform reporting, the study declares, would provide a yardstick by which local units might measure the comparative efficiency of their administrative operations. It would also be of considerable help in the administering of state aid and in providing more intelligible information for the interested citizen.

The basic recommendations in the report call for a uniform fiscal year; a uniform system of accounting, and a state audit of local governmental accounts.

Graphic References

METROPOLIS IN MAPS—*Graphic References for the Boston Area. Bureau for Research in Municipal Government, Harvard Graduate School of Public Administration, Cambridge, Mass.* 1946. 87 *pp.* $2.50.

The birth, growth, and development of a city is presented in this book of maps which attempts to show the interaction of government and society within a metropolitan area.

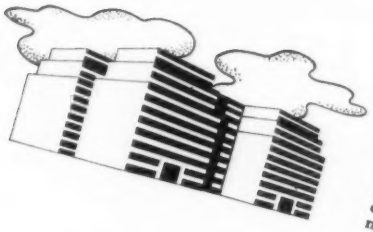
The main series of maps indicates several of the current divisions of the Boston area and Massachusetts, for governmental and community purposes.

The import of these graphic views will be valid if applied to any other metropolitan region.

Recreation Program

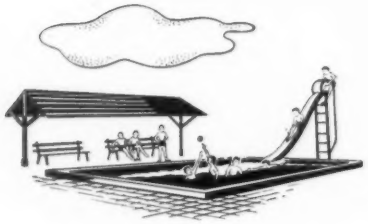
SUGGESTIONS FOR PROMOTING AND ORGANIZING A RECREATION PROGRAM FOR A SMALL COMMUNITY—*The Wisconsin Recreation Association, 3841 West St. Paul Ave., Milwaukee* 8, *Wis.* 25 *cents.*

This publication outlines how a year-around public recreation program was promoted and organized in Menominee Falls, Wis., a village of 1,500. Suggestions for a specific campaign are included, as well as the full text of letters and a petition for the establishment of a recreational program.



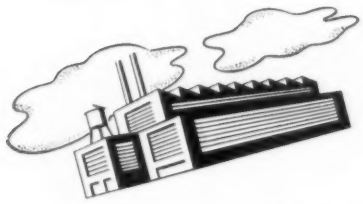
FOR THE HOUSING DEVELOPMENT

Slum clearance and unprecedented population growth in recent years have greatly increased demand for good municipal water.



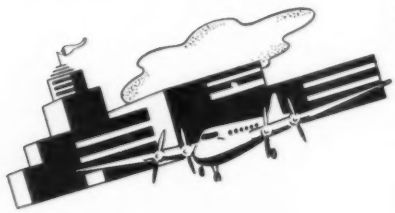
FOR PLAYGROUNDS

Proposed civic centers for recreation, such as swimming pools, will require great quantities of water and it must be *good* water.



FOR NEW INDUSTRIES

To attract new business, which provides jobs, a city must provide plenty of good water, industry's most important raw material.



FOR THE AIRPORT

As air travel becomes an integral part of our living, more and more of a city's supply of treated water must be allocated for airport use.

Will the WATER be good enough?

In *your* city's plans for better living, what about water? Is it *good enough* to meet the many *new* demands for municipal water—from builders, from industry?

Permutit* conditioned water comes into the home, hospital, playground and factory soft . . . clear . . . iron-free. It's the best treatment a city can give its water supply.

No wonder so many municipalities have turned to Permutit for the good water called for in postwar plans of city planning commissions. For your own information, write The Permutit Company, Dept. A5, 330 West 42nd Street, New York 18, N. Y. or Permutit Co. of Canada, Ltd., Montreal

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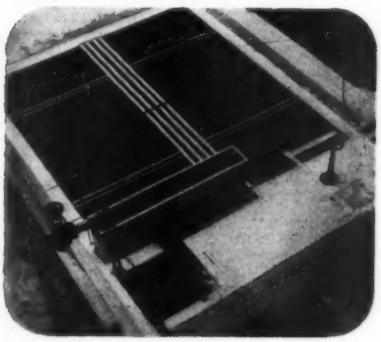


PERMUTIT SPAULDING PRECIPITATOR removes water hardness, dirt and color by the sludge blanket process. This new-design equipment cuts detention time, saves chemicals, takes only half the space of former methods. Present installations handle up to 120,000,000 gallons daily.

For more than 30 years **PERMUTIT**

WATER CONDITIONING HEADQUARTERS

A British City Plan

COUNTY TOWN—A CIVIC SURVEY FOR THE PLANNING OF WORCESTER—*By Janet Glaisyer, T. Brennan, W. Ritchie, and P. Sargant Florence. Available in this country through Transatlantic Arts, Inc., Forest Hills, N. Y.* 1946. 320 *pp.* $5.30.

Written by a team of sociologists and economists of Birmingham University, and prepared for the Worcester City Council, the approach and methods of this comprehensive British planning study provides much material of general interest.

The main concern of the study is with full employment and higher standards of living and working, rather than with architecture. The practical objective was to lay a scientific, economic, and sociological foundation from which the city's plans for physical and social redevelopment could be framed.

Story of a British City

ENGLISH CITY, THE STORY OF BRISTOL.—*Available from Transatlantic Arts, Inc., Forest Hills, N. Y.* 1947. 88 *pp.* $3.00.

Published by a local manufacturing concern, this is a picturesque, well-illustrated, and engaging account of the founding of a typical British city, and its development through the years, including present-day planning and reconstruction problems.

The book shows that the government of the city has gradually become more and more complex and, at the same time, the responsibility of local government has been extended to an ever-increasing number of its citizens.

British War Memorials

WAR MEMORIALS.—*By Arnold Whittick, Country Life Limited, 2-10 Tavistock Street, Convent Garden, W. C. 2, London, England,* 1947. 181 *pp.* 30 *shillings net.*

Care and forethought in the selection of war memorials are recommended in this British publication, which emphasizes the necessity for commemoration and remembrance through inspirational design and construction.

The last chapter is devoted to descriptions of schemes for a United Nations' War Memorial, the most interesting of which is an International University to increase understanding among people and to stimulate a sense of common endeavor towards the greater enrichment of human life.

New Towns Problems

NEW TOWNS: PROBLEMS OF DESIGN AND ORGANIZATION.—*By Prof. W. G. Holford. Article appearing in the Journal of the Royal Institute of British Architects, February* 1947. 66 *Portland Place, London W.1., England.* 10 *pp.* 90 *cents, plus postage.*

The article by Prof. Holford discusses administrative problems and difficulties involved in the creation of new towns, with particular emphasis on how to improve their design and maintain high architectural and planning standards.

State Services

YOU AND YOUR STATE—*Bureau of Information, Division of State Publicity, New York State Department of Commerce, Albany 7, N. Y.* 1946. *Illust.* 31 *pp.*

This pamphlet is a popularized and humorous version of "A Guide to State Services", which systematically presents significant services available to communities. Other state departments of commerce can get many ideas from this bright job which sells the state to the people.

Swimming Pools

THE NEW SWIMMIN' HOLE—*Issued by the Division of Sanitary Engineering, Department of Health, Springfield, Ill. February* 1947. 6 *pp.*

The resumption of publication of this periodical devoted to promoting the installation and efficient operation of swimming pools is welcomed. It contains much information and many helpful pointers on this specialized subject.

Delinquent Property Taxes and Their Collection

COLLECTING DELINQUENT PROPERTY TAXES—*Research Department, Illinois Legislative Council, Springfield. Publication No.* 78. 1946. *Mimeo.* 28 *pp.*

A brief survey of statistical data concerning the extent of tax delinquency and a review of provisions in Illinois and other states with regard to the major means for collecting general property taxes which have become delinquent.

Special Assessments

BIBLIOGRAPHY ON SPECIAL ASSESSMENTS — *By Herman Gerald Berkman, University of Chicago. American Society of Planning Officials,* 1313 *E. 60th Street, Chicago* 37, *Ill.* 1946. *Mimeo.* 23 *pp.*

An exceptionally well-prepared, useful source of reference on the subject, which contains all the most important works and representative minor works. The bibliography is arranged so the user is acquainted with phases of the subject most likely to be of value to him.

City Budget Trends

BACKGROUND FOR BUDGETING—A PICTORIAL REVIEW OF CITY BUDGET TRENDS—*Bureau of Governmental Research,* 153 *East Elizabeth, Detroit* 1, *Mich.* 1947. 22 *pp.* 50 *cents.*

It is pointed out in this booklet that the city budget-making time represents an excellent opportunity for the citizen to focus his attention on the broad picture of city operations. By means of colored graphs, background is furnished for value-judgments on the operations of Detroit's city government.

Individual City Financial Data

CITY FINANCES: 1945—*Individual City Reports, Vol.* 1. *Bureau of the Census, J. C. Capt, Director, Washington, D. C. Mimeo.* 4 *pp.*

This pamphlet announces that Volume One of this series will contain complete and detailed information on individual cities having 1940 populations over 250,000. Each city pamphlet gives in the detail available from Census Bureau records the principal financial data for the year in dollar amounts.

Guiding Future Building

GUIDING THE BUILDING BOOM, A STUDY OF AREAS SUITABLE FOR RESIDENTIAL DEVELOPMENT.—*Greater Boston Development Committee, Inc.,* 80 *Federal St., Boston* 10, *Mass.* 1947. 21 *pp.*

The main purpose of this study is to focus attention and interest upon the most suitable residential land for larger-scale building operations, which will exert important influence upon local communities, especially the surburban towns of the Boston metropolitan area.

An Employe-Rating System

MEASURING AND RATING EMPLOYEE VALUE.—*By John B. Probst. The Ronald Press Company,* 15 *E. 26th St., New York, N. Y.* 1947. 166 *pp.* $5.00.

This book describes in detail the methods developed by the author for rating the personal capabilities and work performances of individual employes. The methods are all time-tested and have yielded results which have correlated remarkably well with the theoretical "normal" or bell-shaped curve distributions of human abilities.

The Probst Rating System, which is now in use in many business, industrial, and public organizations, seeks to rate employes with the maximum possible application of scientific analysis and measurement, and the minimum use of mere judgment. The procedures are presented in non-technical language and should be valuable to any public officer with a considerable number of employes under his jurisdiction.

Architecture for All

ARCHITECTURE, AN ART FOR ALL MEN—*By Talbot Hamlin. Columbia University Press, New York, N. Y.* 1947. 279 *pp.* $3.50.

An elementary guide to the understanding and appreciation of architecture, this book furnishes the general reader with a sound introduction to the place of architecture in everyday life. To a large extent the book represents an up-to-date version of the author's *Enjoyment of Architecture,* published more than thirty years ago.

Using a broad definition of the word, the author points out that understanding and appreciating architecture is no longer a mere matter of "enjoyment;" it is a matter so deeply implicated in the tissue of our living that it should be as much a part of our lives as is a basic understanding of politics or economics.

The last chapter of the book, "Architecture and the Community," deals with the social values and opportunities of architecture in town and city planning, housing, slum clearance, and schools, and the responsibility of individuals in a community in helping to produce more beautiful, healthful and efficient towns and cities.

New A. I. A. Bulletin

BULLETIN OF THE AMERICAN INSTITUTE OF ARCHITECTS — *Published bi-monthly at the Octagon,* 1741 *New York Avenue, N. W., Washington* 6, *D. C. March* 1947. *Vol.* 1, *No.* 1. *Single copies,* 50 *cents.*

This first number of a new edition of the *A. I. A. Bulletin* is separated into three major departments: membership and association news, department of public and professional relations, and department of education and research. The first issue contains an extensive section and bibliography on the planning of public school buildings, and how they should be designed for community recreation use.

Architectural Handbook

THE HANDBOOK OF ARCHITECTURAL PRACTICE—*The American Institute of Architects, The Octagon,* 1741 *New York Ave., Washington* 6, *D. C.* 1947. 196 *pp.* $5.00.

Municipalities expecting to erect public buildings, and interested in holding competitions or selecting architects for such work, may be interested in this publication. It outlines the rules and procedures for the profession and includes sections on drawing up agreements, methods of paying the architect, etc.

Revamped Building Code

THE BUILDING CODE OF THE CITY OF MOUNT VERNON, NEW YORK—*Prepared by George A. Boehm.* 1946. 224 *pp.*

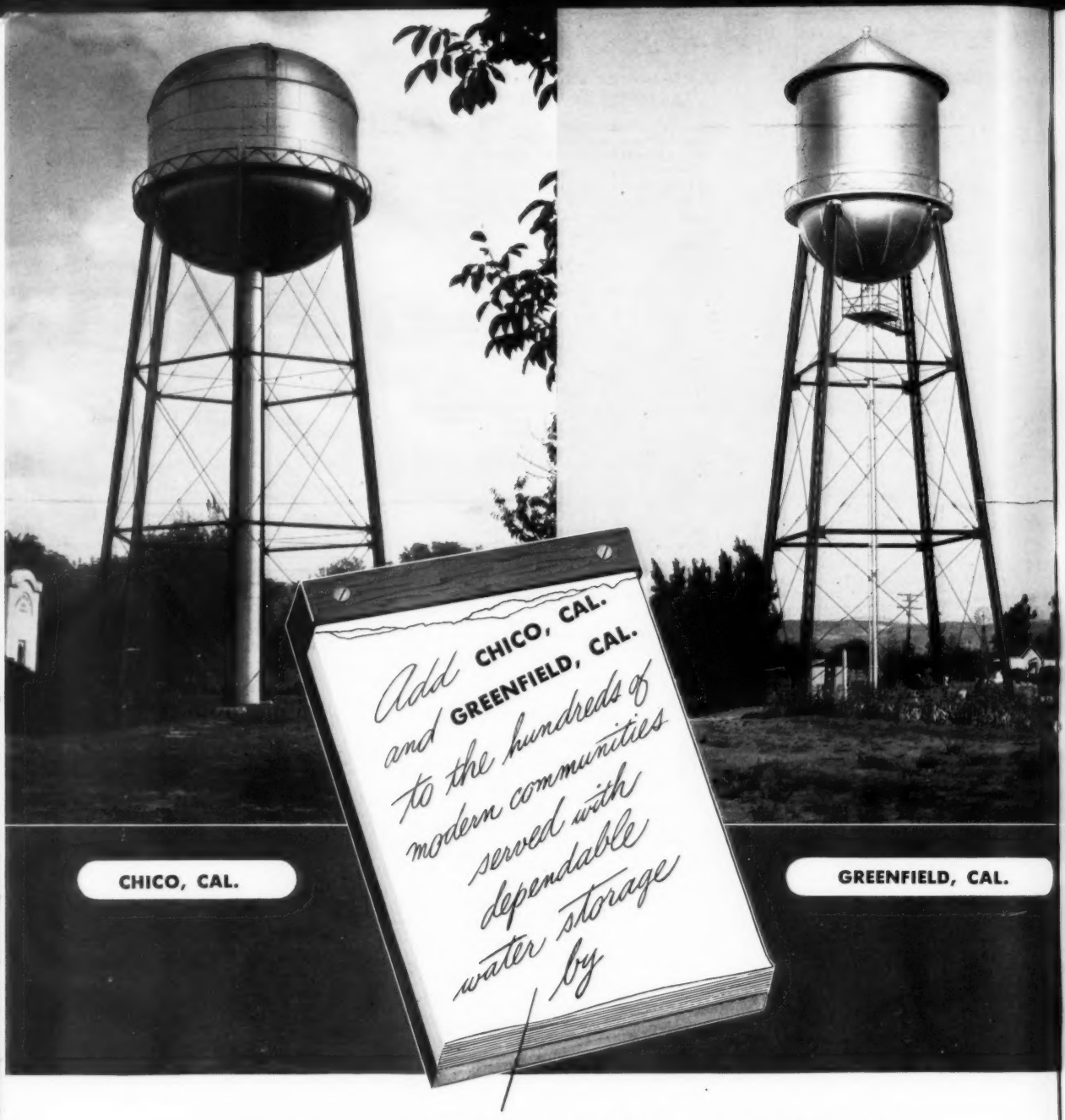
Written in a clear, easy-to-understand style, this new building code eliminates many out-of-date, worthless specifications and procedural building requirements. It recognizes modern construction practices and trends, and makes it easier to apply more efficient techniques. The contents and index of the code are well-arranged and greatly simplify its use.

Human Management Factors

HUMAN FACTORS IN MANAGEMENT.—*Edited by Schuyler Dean Hoslett. Park College Press, Parkville, Miss.* 1946. $4.00.

This book consists of a series of essays by prominent authorities in the field of administration about the influence of human relations on the efficiency and well-being of organizations. The volume should interest everyone who deals with human beings.

Sections of the book deal with the nature and conditions of leadership; the training of leaders in human relations; the interaction of leaders and followers; human relations at the work level and the use of counseling to facilitate adjustments. The book seeks to integrate the important results of research and reflection in this new field.



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Highway Zoning

PROGRESS IN HIGHWAY PROTECTION SECURED THROUGH COUNTY AND TOWN ZONING.—*The Roadside Bulletin, December* 1946. *National Roadside Council,* 119 *E. 19th Street, New York* 3, *N. Y.* 35 *pp.*

This issue of the *Roadside Bulletin* is concerned with county and town zoning as they affect the protection of highway frontage. Many examples are cited to show how zoning is now effectively protecting many highways from undesirable development along abutting property.

Safety Education

TRAFFIC SAFETY EDUCATION—*A Guidebook for State and Civic Officials. A Publication of The Eno Foundation for Highway Traffic Control, Saugatuck, Conn.* 68 *pp.*

The Eno Foundation this time has produced a booklet on safety education which was compiled by leaders experienced in community work as educators, police officers, members of local safety council education staffs, and active state and college leaders in safety education.

The first part of the report is devoted to "Traffic Accidents: A Community Problem." As an example, a mythical "Center City" is described before and after it became accident-conscious. The rest of the booklet is a guide to what can be done about traffic safety, and how it can be done.

Patrolman Requirements

THE CIVIL SERVICE AND PROMOTIONAL POLICE MANUAL—*By Arthur Liebers. The Alicat Bookshop Press,* 287 *S. Broadway, Yonkers* 5, *N. Y.* 1947. 36 *pp.* $1.50.

A study book which includes information about veteran's preference and the New York City Civil Service medical, educational, and physical requirements for patrolman appointment.

County Home Rule

COUNTY HOME RULE FOR WASHINGTON.—*Proceedings of the Section, Community Action in Democracy,* 11*th Annual Institute of Government. Bureau of Public Administration, University of Washington, Seattle.* 1946. *Mimeo.* 10 *pp.*

A discussion of the historical background of Washington counties; county home rule movements in other states, and arguments for county home rule in Washington. A short reading list of articles and pamphlets dealing with the subject of county government and home rule is also included.

Sociological Study

FAMILIES IN TROUBLE.—*By Earl Loman Koos. King's Crown Press,* 1145 *Amsterdam Avenue, New York* 27, *N. Y.* 1946. 134 *pp.* $2.25.

Although not looking for human tragedy, Mr. Koos uncovered enough evidence in his investigations within a single block of a New York tenement district to determine the effectiveness of the social welfare institutions set up to help families in trouble.

One of the main points of the book is that social facilities, as presently organized, are far too inadequate to aid low-income families in which non-preventable sickness or accidents occur, or families in which there is marital maladjustment, juvenile delinquency, or cultural friction. The author's interviewing ability and reporting technique are exceptionally able, and reflect a great deal of human understanding.

Parking Study

PARKING—*By Wilbur S. Smith and Charles S. LeCraw. The Eno Foundation for Highway Traffic Control, Inc., Saugatuck, Conn.* 1946. 119 *pp.*

This report covers the important aspects of parking demands, practices, and treatments. It is a revision of the 1942 report of the Eno Foundation entitled "The Parking Problem—a Library Research," and contains newer information and references on recent surveys and investigations.

Shoreline Plan

SHORELINE DEVELOPMENT, COUNTY OF LOS ANGELES—*Report on the Revised Master Plan of Shoreline Development. Regional Planning Commission.* 1946. 31 *pp.*

Pictures, maps, and tables help to make this report both interesting and attractive. The pamphlet minutely describes the master plan for the Los Angeles Shoreline Drive, and its presentation may be useful to those municipal officials who have similar problems.

Health Regulations

A MODEL ORDINANCE REGULATING EATING AND DRINKING ESTABLISHMENTS—*New York State Bureau of Municipal Information, Albany, N. Y. Report No.* 2921. 1947. 6 *pp. Mimeo.* $1.00.

This report was prepared in cooperation with the New York State Health Department after a study of the state law, regulation of the United States Health Department, and the sanitary rules and regulations of the various cities and villages in the state. Copies are available for the guidance of municipal officials in other states.

Planning For What?

COMMUNITAS: MEANS OF LIVELIHOOD AND WAYS OF LIFE.—*By Percival and Paul Goodman. The University of Chicago Press,* 5750 *Ellis Ave., Chicago, Ill.* 1947. 141 *pp.* $6.00.

There are those who will argue that the gap between what we know and what we do is so vast, especially with regard to community planning and improving our environment, that planners should concentrate their efforts on bringing about the realization of their plans and working for a political climate in which the importance of physical planning will be recognized as an integral part of human existence. This book brings fundamental issues of physical planning to the fore, and threatens to knock the props from under much of the current city planning practice and theory.

The authors state that this is not a book of physical plans, but of issues and ideas. And there is little doubt that some of their schemes and proposals will be considered fantastic and attacked as leading to public confusion about planning aims and purposes. But is it so absurd to question for whom and what we are planning, and for trying to relate our technological way of life to the things men want most?

The authors point out that, barring war, physical planning has come to be the chief way of directing the outlay of money and labor toward the full use of the technical powers of society. Planners must consider seriously community life and moral and cultural values. The authors maintain that such fundamental considerations are rarely a part of present-day plans. Instead, they declare they tend to "perfect existing evils."

The authors describe and criticize the most original and serious major plans of the last hundred years, and present a series of "model" solutions. None of the solutions has much chance of being applied in the near future, but all of them offer much in the way of idea-stimulation.

The book is illustrated throughout with ingenious and humorous little drawings, designed to be read with the text. All in all, the authors have taken the phrase "make no little plans" to heart. Perhaps the concepts and visions in the book are of the type "practical" men need in an era when our accelerating technology and know-how seem to make almost any dream possible, and when man is really at the crossroads of his destiny.

C. E. C.

Governmental Services

SUMMARY LIST OF SERVICES TO GOVERNMENT—*By The Institute of Local and State Government, University of Pennsylvania. July* 1937—*June* 1946. *Mimeo.*

This list includes the direct services of Philadelphia Governmental Agencies and of municipalities other than Philadelphia. There are two sections devoted to the direct services of Pennsylvania State Governmental Agencies and the indirect services of Pennsylvania Local and State Government.

Planning and Housing Reports

CINCINNATI, OHIO—Public Buildings. A Study of the Grouping of Public and Quasi-Public Buildings of the Central Type. Published by the City Planning Commission. 1946. Charts. 63 pp. $1.00.

LOS ANGELES, CALIF.—Accomplishments. 1946. City Planning Commission. Charts. Photos. 48 pp.

SOUTH CHARLESTON, W. VA.—Third Progress Report of the South Charleston Planning Commission. 1946. Graphs. Mimeo. 28 pp.

TOLEDO, OHIO.—Planning Highlights. Toledo-Lucas County Plans Commissions. Issued as a Supplement to the *Toledo City Journal* by the Commission of Publicity and Efficiency. 1947. Illus. 38 pp.

TORONTO, ONT.—A Plan for Etobicoke. Prepared by E. G. Faludi, Town Planning Consultants Limited, 24 Bloor St., East. Maps. 20 pp.

Others Reports Received

ATTLEBORO, MASS.—Preliminary Report, city of Attleboro, Water Supply System. Thomas Worcester, Inc., 84 State St., Boston. Mimeo. Maps. Charts. Appendix. 35 pp.

BROOKLINE, MASS.—The Town Officers' and the Town Records' 241st Annual Report. 1946. Clerk's Department, Town of Brookline. Charts. 467 pp.

CHICAGO, ILL.—Municipal Personnel Administration. Published for the Institute for Training in Municipal Administration by The International City Managers' Association, 1313 East 60 St. Fourth Edition. 1947. 435 pp.

HONOLULU, HAWAII—Eleventh Biennial Report of the Board of Water Supply. 1946. Frederick Ohrt, Manager and Chief Engineer. Photos. Charts. 185 pp.

MILTON, MASS.—The Town of Milton. 110th Annual Report. 1946. Charts. 370 pp.

MONTGOMERY, ALA.—Garbage Collection Practices in Various Alabama Municipalities. Complied by Ed. E. Reid, Executive Director, Alabama League of Municipalities. Mimeo. 1947.

NEW JERSEY—Land-Subdivision Guidance and Regulation in New Jersey and A Model Draft of Platting Rules and Regulations. 1946. The New Jersey State Department of Economic Development, Division of Planning and Engineering. 20 pp.

NEW YORK, N. Y.—Directory of Social Agencies of the City of New York. 1946-1947. Prepared under the direction of the Committee on Information Services of the Welfare Council. 44 East 23rd St. 424 pp.

ROANOKE, VA.—City Auditor's Financial Report of the city of Roanoke. 1946. Harry R. Yates, City Auditor. 66 pp.

WASHINGTON, D. C.—A Check List for the Review of Local Subdivision Controls. National Housing Agency. 1947. Mimeo. Appendix. 43 pp.

YOUNGSTOWN, OHIO.—Annual Report of the Trustees of the Sinking Fund. 1946. Office of the Board, City Hall. Tables. 21 pp.

(*Continued on page* 133)

Reprints Available

The bibliography, *Some Helpful Books and Pamphlets on Community Planning and Control of Land Uses*, published in the March 1947 issue of The American City, has been reprinted in leaflet form for free distribution.

"Tests Convinced Us... PEOPLE LIKE TROLLEY COACHES BEST"

—SAY CLEVELAND TRANSIT SYSTEM OFFICIALS

Modernizing public transit with vehicles people actually prefer may be just what your city needs to reduce traffic congestion

To determine the public's opinion of various types of transit vehicles, Cleveland tested streetcars, motor buses, and trolley coaches on its Hough Avenue line in 1935. Increased riding indicated people like clean, quiet, smooth-riding trolley coaches best.

This public preference has led to the extensive use of trolley coaches in Cleveland's huge transit modernization program. Today 300 additional units are in service or on order. Clevelanders are riding trolley coaches more and more—and by choice are helping solve the traffic congestion problem by riding public transit instead of automobiles.

Proved tops in popularity everywhere, fast, comfortable, smooth-riding trolley coaches keep traffic congestion down by pushing transit riding up. This means fewer automobiles downtown, fewer costly street-widening projects, and fewer parking headaches. And when transit service is good, people and goods move easily throughout every part of the city. Business prospers and property values stabilize at levels which produce steady tax receipts.

Here's how you can eliminate many traffic jams in your city: (1) Restrict parking on downtown streets. (2) Encourage more people to use public transit for daily urban travel. And if your city is not yet served by trolley coaches—(3) discuss with your transit company the possibility of using these up-to-date electrics. *Apparatus Dept., General Electric Company, Schenectady 5, N. Y.*

See LIFESTREAM OF THE CITY, the movie that promotes transit service. Your G-E representative will arrange for a showing.

Listen to BULLDOG DRUMMOND, the transit industry's national radio program. Mutual Network, Friday, 9:30 p.m. EST. See your newspaper for local station.

GENERAL ELECTRIC

Notes Here and There

Better Transit Coming

THIS year, American and Canadian companies are spending more than twice as much for new buses as last year, three times as much for new trolley coaches, and 50% more for new trolley cars. More than $171,000,000 will be spent for new streamlined trolley cars, and $14,000,000 for new trolley coaches. The total cost of new ways, structure, power, and lines will be $78,000,000.

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New Appointments

ARCH N. BOOTH, manager of the United States Chamber of Commerce, announces the appointment of Harold F. Hammond as assistant manager of the Chamber's Transportation and Communication Department. Colonel Alvin B. Barber is department manager. Mr. Hammond has been Washington Representative of the American Transit Association since 1944. A past president of the Institute of Traffic Engineers, Mr. Hammond has done private consulting work for numerous cities, Chambers of Commerce, transit companies, and manufacturing firms.

The Board of Direction, Institute of Traffic Engineers, announces the nomination of Robert S. Holmes to the newly-created position of Executive Secretary to the Institute of Traffic Engineers. The membership approved an amendment to the Constitution to provide for this position for the first time in the history of the profession. Robert A. Mitchell, vice-president in charge of publicity and public relations, says, "We are looking forward to the date when the newly appointed Executive Secretary will begin his duties with much encouragement, as it marks another milestone in the progress of the Institute of Traffic Engineers."

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Forums and Studies

THE Cleveland City Planning Commission recently suggested some important steps for action on the downtown-parking problem. The one point emphasized is that, if there are not adequate transportation facilities, including parking, to serve downtown activities, they cannot survive as a source of profit to their owners and of tax revenue to the city. The commission has recommended to the mayor and council for consideration a policy involving the following factors: (a) early purchase by the city of vacant land or sites now in parking use which are needed to assure adequate permanent parking facilities, (b) lease of such sites and other city properties for private operation, (c) assurance of permanence of necessary privately-owned facilities, (d) methods of financing, including assessment-districts, for equitable distribution of costs.

Speaking before a Police Traffic Forum in Williamsport, March 19, Mr. Henry K. Evans, director of the Traffic Engineering Division of the National Conservation Bureau, informed the group that one double-parking vehicle can deny the use of a traffic lane to 750 to 1,000 other vehicles each hour.

Loading and unloading merchandise from double-parked trucks is a major source of traffic congestion.

Special curb loading zones should be set aside for trucks and other vehicles should be kept out of them. Some cities have gone so far as to prohibit entirely any commercial deliveries or pick-ups in business districts during the 4 to 6 p.m. traffic rush hours. Many other cities may soon find it necessary to do this, but even if commercial loading is entirely banned during peak hours, it must be taken care of during other hours of the day, and it should be seen to that proper zones are set aside at the curb for this purpose.

At the recent Fort Wayne Civic Association meeting, an open forum was conducted on pertinent traffic problems. Among the opinions presented were the following: (1) Limited parking and one-way traffic on certain streets will go into effect soon. (2) *Ticket-fixing* is a thing of the past when the administration takes a firm stand against it. (3) Complete checking of overparking is not possible with the force of officers now available, and parking meters would render fair and efficient service. It was stated that they would pay for themselves in a year. Parking meters have proved satisfactory in thirty-eight out of fifty-five cities in Fort Wayne's class. (4) Any parking plan must be considered in connection with the master plan of the city, and parking facilities must be of a permanent nature.

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Accident Summary

THE Department of Public Safety of the city of Pittsburgh has these accident figures to contribute from a study based on the 1946 record. While they make no attempt at absolute infallibility, they are indicative and thought provoking.

The month of December had the greatest total of accidents. Friday and Saturday were the high days of the week, and most of the accidents occurred betweent 5 p.m. and 6 p.m. Throughout the year, pedestrians suffered 68.23% of the fatalities. In types of accidents, collision of one or more motor vehicles was the chief cause, and collision of motor vehicles with pedestrians, the second. The most constant violation was speeding, with improper passing a close second. The chief pedestrian violations were crossing at intersections, and coming out from behind parked cars. The age group of drivers rating highest in accident participation was from 25 to 34, and the age of pedestrians 46.8. Among the accidents on which the sex of the driver was recorded, there were 5,648 males and 398 females.

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Windy City Gets Modern Transit

A TOTAL of 1,275 new transit vehicles, comprising trolley coaches, PCC cars and motor buses, is being purchased to modernize and improve the transit system of Chicago, Ill. Many of the PCC cars and motor buses already have been received and placed in service. When all of the equipment now on order is delivered and put in operation on the various lines, twenty-two of the system's former old-type street car lines will have been converted from rail- to rubber-tired operation. Four heavily traveled major trunk rail lines will have modern street cars. Moreover, several existing trolley coach and motor bus lines will have been extended.

Parking Meters Praised

Senate Survey Reports 24,994 in Operation in the State

ALBANY, Feb. 5.—Parking meters in forty-seven of New York State's sixty-two cities are a success, both as revenue producers and as aids to traffic control, according to a survey made by the Senate Committee on Affairs of Cities.

During 1946 there were 24,994 meters in operation throughout the state, and they collected $1,269,852 in nickels and dimes, the survey showed. New York City is the only large city in the state without parking meters. The City Planning Commission has recommended the installation of 8,500 meters under a permissive law enacted at the last session of the Legislature.

NEW YORK HERALD TRIBUNE.

DUAL Automatic Parking Meters set the pace in Quality Workmanship

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No detail is overlooked in making sure that quality workmanship goes into every Dual; nothing less is acceptable to Dual engineers.

That's why Duals are so dependable—why they serve so well in hundreds of installations from Canada to Texas and Florida.

Duals are ruggedly built, low in installation and maintenance costs. They're tamper-proof and weather-proof. And—they *earn* money, because long after they've paid for themselves, they provide a steady source of revenue for other municipal services.

Duals can help solve your community traffic control problems—can be a profitable investment. Write for details—ask for the informative free booklet DU-501, or call upon our engineers for helpful, friendly cooperation.

THE DUAL PARKING METER COMPANY

A subsidiary of The Union Metal Manufacturing Co.

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WHEN IT COMES TO CONTROLLING PARKING YOU CAN DO IT BETTER WITH DUALS

Modern Transit Coming to Richmond

By WARREN R. POLLARD
President, Virginia Transit Company
Richmond, Va.

LIKE other large cities in the United States, Richmond, Va., is suffering from a municipal disease known as "traffic congestion." This ailment means that Richmond is somewhat like the man suffering from hardening of the arteries—its circulation is being choked. The lifestream of man is the circulation of blood, but the lifestream of a city is the orderly, even movement of people.

One way of solving this municipal disease is the efficient and proper use of our existing downtown street space. Strict regulation of on-street parking and the establishment of more off-street parking facilities, as previously indicated, will open more lanes for traffic movement. But will not these newly opened lanes be absorbed when automobile production begins to catch up with the demand? Already we have reports that the monthly sales of new automobiles is surpassing those of the same months in 1940. So it would appear that there is already a demand for new lanes for traffic movement, before the lanes are actually opened.

Removal of Street Cars

The Virginia Transit Company has a plan for improving and modernizing Richmond's transit service. This plan is based on the idea of moving people rather than vehicles. The removal of street-car tracks from the middle of the streets will speed the movement of traffic. Transit vehicles will take on and discharge passengers at the curb, permitting automobiles to pass them rather than wait for the vehicle to move on, as is now necessary with street cars. This one advantage of buses and trolley coaches will help speed traffic throughout the city.

For instance, on Broad Street, at least three and possibly four lanes will be opened for the movement of traffic, when the use of street cars is abandoned. The bottleneck created at each downtown intersection by the in-the-street loading zone will open Broad Street for more rapid movement of traffic at each street crossing. After the removal of street cars, important side streets will be open for greater movement of all types of traffic.

At this point, it might be concluded that the mere elimination of street cars and the substitution of buses and trolley coaches will solve the traffic problem. This is far from correct. It is true that using the existing transit routes and operating the newer types of vehicles will speed service and open lanes for the movement of more traffic. But to eliminate street cars would be doing only half the job.

To modernize the transit system, we must go farther than installing new equipment and scrapping the old street cars. We must make such changes which will give Richmond a transit service that will be so good that present automobile riders will leave their cars at home and use the transit lines for in-town transportation.

Already some of the modern changes have been made. Express service has been put into operation on the Chamberlayne bus line, affording patrons of that section a more convenient and time-saving transit service. Improvements have been made in many of the "behind-the-scene" methods of operation. These include the installation of an automatic bus washer to provide cleaner vehicles; a highly systematized plan of vehicle inspection and maintenance to afford greater safety and reduce service interruptions; schedule study, and radio car patrols by roving supervisors.

Study of Riding Habits

An origin and destination study of the riding habits of the people of Richmond will be completed later this year. From the answers to two simple questions—the address the rider is traveling from, and the address he is traveling to—we will ascertain exactly where transit service is needed, and the amount of service required to meet the demands of the public.

The over-all plan of modernization, as far as routing is concerned, will follow generally the recommendations in the Harland Bartholomew master plan for the physical development of the city. His recommendations were based on population shifts and other factors ascertained in the study of Richmond. Naturally, some deviations from the master plan will be made in accordance with the findings of the origin and destination study.

Further, the modernization plan will follow other recommendations made in studies of the transit system in that direct routing will be inaugurated wherever possible, and faster service, not in the terms of miles per hour, but in freedom from turning movements, many stops, and other impediments, will be provided.

As Richmond continues to grow and develop, it will rely more on public transit service. Parking difficulties and traffic congestion will make it increasingly desirable for those wishing to travel from their homes to work, to shop, to school, and to places of recreation and entertainment to use trolley coaches and buses. With a service tailored to meet the changing needs of Richmond's growing commercial and industrial activities, in the form of clean, modern buses and trolley coaches that incorporate every modern convenience, the Virginia Transit Company expects to play an important role in the future development of Richmond.

Carlsbad Pennies and Nickels

WHEN all-day parkers had about eliminated shoppers in cars, we installed 450 Karpark meters. Although the all-day parkers didn't like them, the public reaction was favorable.

For a while the revenue of $107 a day was a problem. We bought an Abbott coin-counting and wrapping machine, but our coins were both nickels and pennies. In order to separate them, we built a coin-sorting machine.

While we do not want to divert sales from sorter builders, we will be glad to tell others who might be interested in our machine. A metal cylinder 3 feet long and 12 inches in diameter is punched full of 0.75-inch holes. It revolves about twice a minute on a shaft driven by a small motor with a vee belt through a speed reducer. Pennies fall through the holes into a box, and nickels run out the end into a sack. Ten minutes' time will separate $300 worth of mixed nickels and pennies with no work. It would take hours by hand. The cost of the machine, for parts not in the junk room and for machine work, was not over fifteen dollars.

E. A. ROBERTS,
City Clerk-Treasurer,
City of Carlsbad, N. M.

Cut the accident toll

at dangerous **acute-angle** intersections with

CROUSE-HINDS

Adjustable Traffic Signals

Intersections where the streets or highways form an acute angle are extra hazardous and require special attention in planning for safety. Crouse-Hinds Adjustable Traffic Signals enable you to set each signal face exactly at the right angle to face approaching traffic from each direction. This accurate setting eliminates any possibility of confusion in the mind of the motorist, especially strangers who may also be looking for street signs or highway numbers.

It pays to standardize on Crouse-Hinds Adjustable Traffic Signals. They can be furnished to face in any number of directions up to six.

Crouse-Hinds Catalog 226 lists a complete line of traffic signals, beacons, flashers, and a series of controllers designed to help you solve your traffic control problems — from simple installations up to the most complex heavy traffic problem. Send for your copy.

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Better Transit Service—The Case for the Trolley Coach

By J. H. GAUSS
General Electric Co.
Erie, Pennsylvania

THE urban transit system is a major factor affecting the location of the nerve center of Eric, Pa. Without adequate local transit service, the traffic flow within the city stops. The congestion of cars clogging streets, parking lots, and garages is one of the first reasons that business men shift to new locations. A business ceases to be one if enough people cannot get to it.

In selecting the proper transit vehicle, everything must be considered—from public preference to fundamental economics. The public wants a short wait for a transit vehicle that takes them safely, quickly, and quietly to its destination. Public officials and local business men want the transit system to take them and their workers to their offices, stores, and factories, and then to be able to maintain a rapid shopper-turnover to the business districts. And the transit operators want to do this at a reasonable profit.

Vehicle Selection

The trolley coach's economic field of service is those trunk lines that do not justify street car operation but do justify a large-sized vehicle (37 to 44 passengers). One trolley coach line can handle the people that a seven-lane highway normally handles by private automobiles. For lines of lighter service, the mechanical bus is best suited.

No guide or rough yardstick can be applied to a specific line for the final and definite vehicle selection. As an illustration, assume that a line in an average city is ten miles long, round trip. A traffic study has indicated that this line requires forty-four-passenger vehicles operating on a four-minute rush-hour headway. The problem is: "Which vehicle can serve this line most economically?"

Study Made

The first step is to determine the number of vehicles required for the line. The study indicates that fourteen 44-passenger trolley coaches or sixteen 44-passenger mechanical buses are required to handle the traffic. Because of normal maintenance, wrecks, and reconditioning, two spare trolley coaches or three mechanical buses should be purchased, making the total number of vehicles required sixteen trolley coaches or nineteen buses.

A recent study made of eleven properties disclosed that these properties maintained an average of 2.4% spare trolley coaches and 15.3% spare buses. Seattle, Wash., operating 307 trolley coaches, maintains only 2.6% spares. Similarly, they operate approximately 300 buses and maintain 12% spares. For our small operation, two spare trolley coaches and three spare buses seem reasonable.

In addition to the fact that the trolley coach is inherently a faster-accelerating vehicle than a bus, other features of its construction assist it in maintaining a faster schedule-speed. To name one, the trolley coach generally has a 30% wider aisle and wider doors than mechanical buses, permitting the movement of passengers on and off the coach to be speeded up considerably, thereby reducing stop time and increasing service.

The Ashland, Ohio, Junior Chamber of Commerce used this method of conducting the March of Dimes campaign to combat infantile paralysis.

Double-duty Meters for March of Dimes Campaign

THE Ashland, Ohio, Junior Chamber of Commerce devised a new method this year for conducting the March of Dimes' Infantile Paralysis Drive. The city parking meters have done the job.

As drivers put in the coin for parking space, a sign on the meter reminded them of the March of Dimes contributions and invited them to drop money into the meters for this purpose. Since the meters do not operate on dimes, this was definitely a "contribution" and did not afford additional parking time.

Permission to use the meters in this way was obtained from the city council. The thousand dimes placed in the 195 Karparks from January 15 to 30 were turned over to the March of Dimes Committee. Edgar Koehl, Jr., Ashland County Campaign Director, reports that this method, never used before, will become a permanent part of the local drive in Ashland.

New Markers for Gonzales

THE city of Gonzales, Texas, (population 6,000) recently installed street markers like those shown. The markers, 6 feet tall over-all and sunk 2 feet in the ground, are 6 inches square at the bottom and taper to a 4-inch square top. Built with two pieces of steel and covered with white cement, they are lettered on all four sides. The letters are cut into the marker, then painted black.

Carlos C. Smith, City Manager of Gonzales, says: "these have proved very satisfactory for a town of this size."

Hard-Working Meters Reap More Nickels

THE increasing number of automobiles is reflected in mounting parking meter revenues. Kansas City, Mo., reports that its present 869 Duals collected almost $6,000 more in 1946 than the 1,021 meters did in 1941, the highest previous year. This is $84.50 per meter, as compared with $66. But there's more than money in this story. As they are nickel meters, it means 120,000 more parking spaces provided.

Reflectorize with

THE PRISMO SIGN KIT in the field!

signs, culverts, guard rails, bridges, and all vertical surfaces.

Economical!
Sensible!
Easy!

Take air from striping machine. Spray binder. Embed glass spheres with PRISMO VERTICAL SPHERE GUN.

Completed sign reflectorized in the field. It's economical with high visibility.

Wide angularity with complete visibility from any angle.

Reflectorize any type of surface. Cement abutments, steel bridges, guard rails, posts.

Complete Details
From Your Nearest
PRISMO DISTRIBUTOR
or
THE HOME OFFICE

PRISMO SAFETY CORPORATION

Municipal Division
Huntingdon, Pennsylvania

Old Folks Like Trolley Coaches because

THEY'RE SAFE. Trolley Coaches are the safest rubber-tired transit vehicle. Curb loading, freedom from skidding, and absence of gasoline fire danger put elderly people at ease.

. . . **COMFORTABLE.** Deep-cushion seats make riding restful—uncramped. Unlimited energy supply permits a flood of light for easier seeing. There are no nauseating fumes . . . ample heat to all seats.

. . . **SMOOTH.** No violent, lurching stops and starts. Aged or infirm passengers like the even acceleration and satin-smooth ride.

Commuters Like Trolley Coaches because

THEY'RE RELIABLE. Dependable motive power keeps Trolley Coaches on schedule, in all weather . . . over all terrain. Newly-developed Trolley Coaches mean fewer breakdowns.

. . . **WELL-LIGHTED.** Unlimited energy supply means better lighted steps and aisles for safety . . . more light for reading. The smooth, no-jolt, no-jerk glide is conducive to easier reading.

. . . **FASTER.** The high maneuverability of Trolley Coaches means less traffic delay, gets commuters to their jobs and homes faster.

Hospital Authorities Like Trolley Coaches because

THEY'RE QUIET. The soft whisper of rubber tires and the quiet whir of electric motors are all you hear as a Trolley Coach passes . . . no clashing gears nor noisy motors.

. . . **ODORLESS AND CLEAN.** Objectionable exhaust gases are completely unknown . . . no dirt-carrying fumes to irritate patients.

. . . **ON THE MOVE.** They don't snarl up traffic. Because Trolley Coaches can swing around obstructions, traffic moves smoothly, quietly.

Find out today how Trolley Coaches serve every segment of your community . . . homeowners, hospitals, commuters, old folks, teenagers, shoppers. Call your nearest Westinghouse office. Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pa. J-15134

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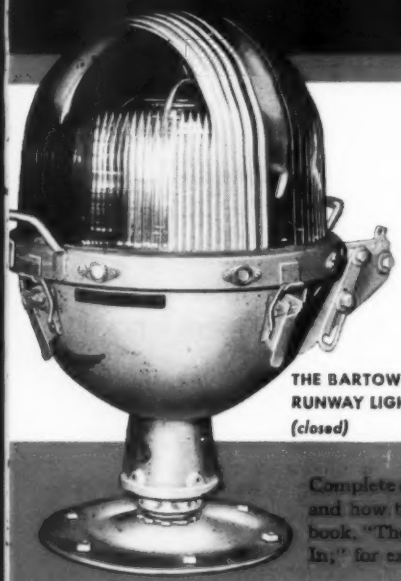
Land Ships Faster, More Safely with

BARTOW

High Intensity Approach and Runway Lighting

Bartow high intensity approach and runway lighting, as seen by a pilot going onto visual contact.



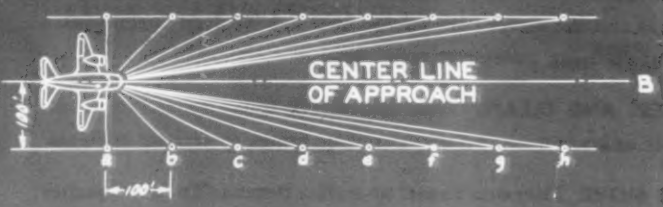
THE BARTOW RUNWAY LIGHT *(closed)*

On a Bartow-equipped runway, landings can be made safely and regularly under low visibility conditions, without reducing present proved safety standards. Therefore stacking and overshooting are greatly reduced.

Bartow high intensity approach and runway lights provide powerful, scientifically controlled beams that give maximum penetration of all atmospheric conditions to guide pilots to a safe landing. Properly controlled direction of light—free of glare—gives the pilot the visual perspective he must have after leaving instruments to make a safe landing under low-visibility conditions.

Bartow runway lights were used during the war by the armed forces in the Aleutians and other particularly bad weather spots. Now available for civilian use, they are being installed at, or ordered for, many airports in the United States and foreign countries.

Complete description of Bartow lights and how they work are given in the book, "The Lights That Bring Them In," for example . . .



The diagram shows that the light from the Bartow unit reaches the pilot at converging angles. The lens system is so designed that at these angles the light from each unit will appear of equal value to the pilot. Glare is eliminated, and the pilot is given perspective to judge location, speed, altitude, attitude, and direction.

Ask us to send you a copy of this new booklet

Now available is a new booklet on low visibility landings discussing restricted visibility problems . . . perspective—its importance to elements of landing . . . also glare and light penetration.

If you are concerned with airport or airline operation, and are interested in approach and runway lighting, ask us to send you a copy of the booklet, "The Lights That Bring Them In." Write Line Material Company, Airport Lighting Division, East Stroudsburg, Pa.

LM

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Floodlighting Combination Athletic Fields

By F. T. TILLEMANS
Lighting Engineer
Westinghouse Electric Corporation
Cleveland, Ohio

THERE is a growing trend in sports-loving communities, not only for athletic field floodlighting, but for combination athletic floodlighting, which permits employing the same areas and equipment for several sports at different times. For example, football is the all-important activity during the fall of the year, during which time most of the other sports are temporarily shelved. Consequently, every consideration is given to illuminating the football field for night games. In the spring and summer months interest in football is abandoned, while baseball and softball take over. During this season the grounds are utilized for the baseball and softball activities, and, if the field-lighting was originally planned for these sports, the games can be carried on after dark with complete satisfaction. To assist municipal engineers, architects, or city planners with the lighting of such fields, a brief explanation of the illumination factors involved, followed by several typical layout illustrations, is presented.

Many recent athletic field-lighting projects have been prepared with the dual feature of providing correctly designed floodlighting for more than one sport. Combination lighting is confined not only to the small school or community, but extends into the realm of the large municipal stadiums as well. Frequently, only one additional floodlighting pole or tower, and in some plans no additional equipment at all makes a baseball field-lighting installation also an excellent football field-lighting installation. Merely turning off certain lights which interfere with spectators, or players, and re-aiming certain others to project the light where it is wanted, converts the lighting of the field from one type of play to the other.

Basic Floodlighting Principles to Consider

As in the case of separate lighting projects, the same basic illumination principles also apply in planning a combination lighting project. These principles include avoidance of undesirable glare from both the spectators' and players' eyes, efficient utilization of available light, uniformity of illumination over the playing field, sufficient intensity of illumination on vertical and horizontal surfaces, and reduction of shadows over the entire field. These principles must be adhered to as much as possible in designing the combination layout. Any necessary deviations should be considered in the form of compromises dictated by the shape or orientation of the respective fields, or by the economics of the specific problem. Basic design features to accomplish the above requirement involve pole locations and heights, distribution of floodlights on the various poles about the field, and beam patterns of the floodlights. Some fields cannot properly be converted to another sport without actually moving one or two poles to different locations. For smaller installations, a pole mounted on a movable skid has proved successful. This skid can be towed by a tractor or truck to its required location and then securely guyed and staked to the ground. This plan is further simplified by the use of overhead wiring, since enough extra wire can be coiled up at the pole wire racks to permit moving the pole to its new location without even having to make a wire splice. However, most systems are designed to avoid the necessity of moving any poles whenever it is possible to illuminate the areas properly from permanently installed poles.

Typical Field Layouts

Figures 1 and 2 illustrate two very popular plans for providing lighting of a baseball field, a softball field, or a football field, with the same equipment. These particular plans require only eight lighting poles, all of which are used for any of the three sports. These particular layouts, not having the baseball infield superimposed upon the football field, eliminate having to returf a portion of the football field each year. Poles No. 1 and 2, located farther from the football field than the other poles, should be at least 20 feet higher to contribute their proper share of light to the football field without excessive glare. By aiming the lights correctly in the beginning, converting to the football season lighting merely means turning off specific floodlights not directly upon the football field. Switches can be located near the base of the poles or on top. It will be necessary to re-aim the lights on poles No. 1 or 2, since their beams fall primarily upon the baseball infield during that particular season.

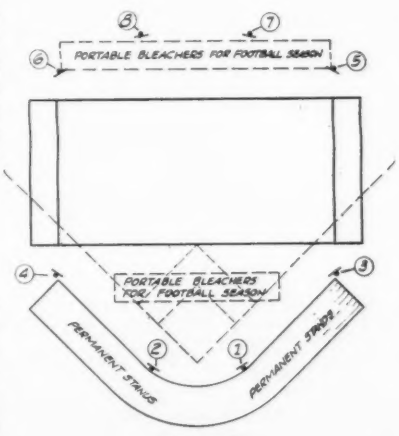

Figure 1

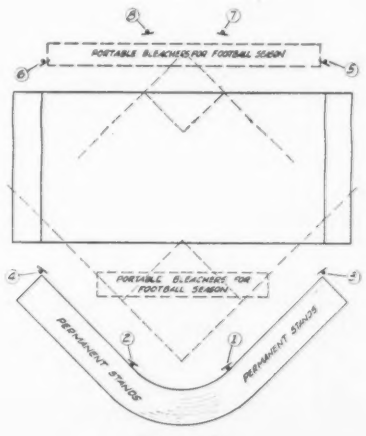

Figure 2

An Entirely NEW LUMINAIRE

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Here is the most important advancement yet made in applying the advantages of high intensity mercury vapor lamps to street lighting. Through radically new design, the new Westinghouse OV-20 Luminaire provides:

- **Higher roadway brightness**
- **More effective light control**
- **Increased efficiency**

Check the specific advantages of this new design in meeting tomorrow's street lighting needs. For additional information, consult your nearby Westinghouse office or distributor or write: Westinghouse Electric Corp., P. O. Box 868, Pittsburgh 30, Pa.

J-04113

Ask for bulletin B-3790 which gives complete information on the new OV-20 Luminaires.

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PLANTS IN 25 CITIES . . . OFFICES EVERYWHERE

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PLANNED LIGHTING

Seating space is accomplished for baseball by using the permanent, properly located grandstand. For the football season, portable bleachers will be set up as shown on the sketches. If the baseball crowds are sufficient, these same bleachers will be set up along the boundary lines to provide additional seating capacity.

Figures 3 and 4 are two plans having the baseball infield located in the vicinity of the football end zone. This layout is quite common, since the permanent grandstand is designed for baseball, as it is the main feature in some communities, and football is second in importance. The football field is superimposed upon the baseball field to take advantage of the permanent stands and lighting arrangement. Converting this type of plan from baseball to football is accomplished by turning off the pre-selected floodlights whose beams fall off the football field or shine up and down the field.

A plan intended to provide excellent illumination for big-league baseball clubs and college or professional football teams is illustrated in Figure 5. One additional tower, No. 9, is required to illuminate the football field end zones properly. To avoid any visual obstructions, towers No. 1 and 2 should be installed on top of the grandstand roof as part of the roof's structural design.

Where it is desired to keep the baseball infield off the football field in order to preserve the turf, the arrangement shown in Figure 6 has been found convenient. Nine floodlight poles are required for the combined lighting of the two fields. Because of the distances from poles No. 1 and 9 to the football field, plus the fact that almost all their light is directed upon the baseball infield, the narrow-beam units on No. 9 should be re-aimed to the football field, the wide-beam units turned off, and all the units on pole No. 1 left dark, when changing for the football season. Approximately half the floods on No. 8 will not contribute any light on the football field without re-aiming and may be turned off during the football season since, there are still sufficient lights remaining on the No. 9 pole directed at the football field.

Figure 7 is another arrangement where the baseball infield is kept off the football field, but it presents a special problem from the lighting standpoint because of the relationship of the two fields. The problem was solved by employing eleven permanently installed poles, all of which will be utilized for baseball, and all except numbers 2, 5, and 11, for football. Number 3, being very far from the football field, should be approximately 100 feet high for the benefit of football, whereas the remainder can be 80 feet high since they are close enough to the field of play.

Sometimes, due to the orientation of the two fields, it is not possible to floodlight both fields effectively from permanently installed poles or towers. Such is the case in Figure 8, where it is necessary to move one pole when changing over from the baseball to football season. The floodlighting pole at location No. 12 is necessary for proper baseball lighting, but is obviously an obstruction to baseball play. Consequently, one pole is moved alternately back and forth between locations No. 12 and No. 3, thereby providing excellent lighting for either game. Figure 9 is another example that illustrates a movable pole installation. In this plan, pole No. 7 will be shifted to location No. 7A during the football season to floodlight the central areas of the football field properly.

It is frequently found convenient to install a number of extra brackets on the pole crossarms to eliminate the necessity of re-aiming any floodlights when changing the system over to another sport. These brackets will be permanently adjusted for one sport in accordance with the spotting plan. To convert to the other sport, it is merely necessary to shift certain specific reflectors and lamps to the extra brackets, thereby eliminating the task of re-aiming any lights each time the seasonal conversion occurs. The brackets will all be permanently wired. Lights

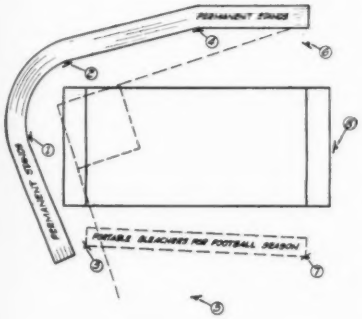
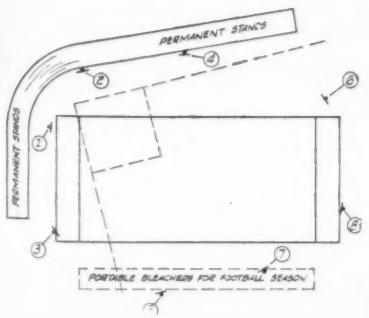


Figure 3



. . Figure 4

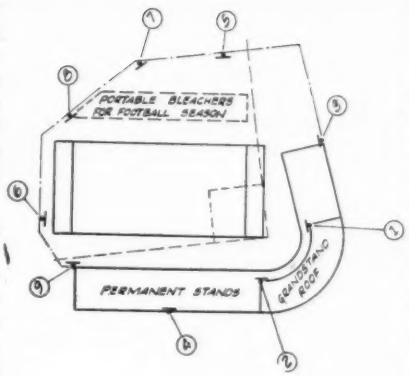


Figure 5

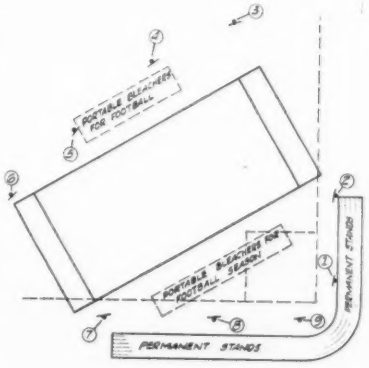


Figure 6

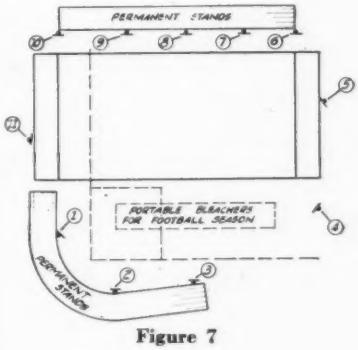


Figure 7

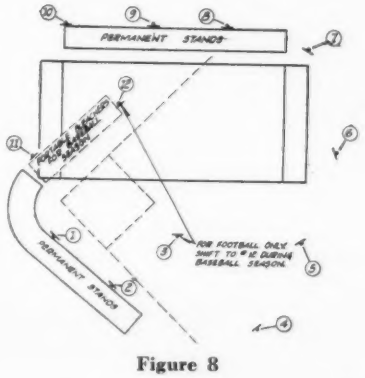
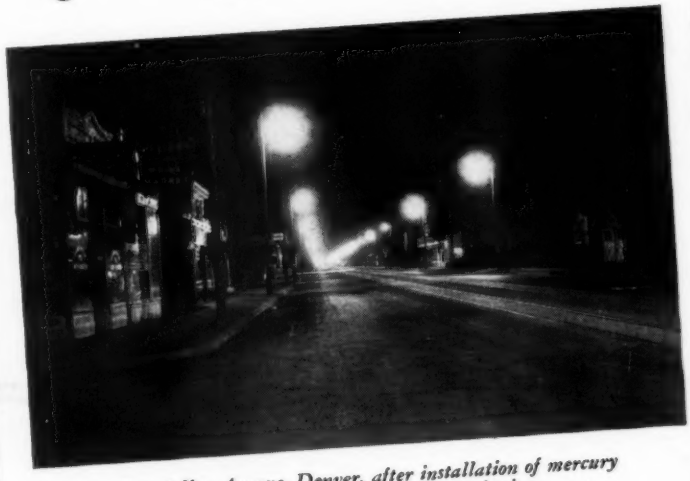


Figure 8

A good example of HOW TO GET MORE STREET LIGHTING PER DOLLAR

Measuring horizontal foot-candles on pavement—one of several on-the-spot studies often required in properly planning street lighting.



West Colfax Avenue, Denver, after installation of mercury lighting with G-E Form 79D Luminaires.

survey service, available to all communities, points the way to lighting savings.

A few years ago, officials of Denver and of the Public Service Company of Colorado that serves it, decided that portions of the street-lighting system should be replaced. They requested General Electric to aid in making a comprehensive survey of lighting needs.

This was done. Lighting intensities were checked and compared with latest standards. Specific types of modern equipment were selected for the various classes of streets. Finally, a complete plan for modernizing all lighting over a 5- or 10-year period was developed in co-operation with city and power-company experts.

Modernization is now under way—following this plan. It will provide this progressive city with lighting meeting the latest IES Code—with maximum interchangeability of equipment—and with far more light per dollar than was delivered by the older equipment.

When You Contemplate New Street Lighting . . .

The service furnished Denver is typical of that provided for scores of cities. General Electric Lighting Specialists will be glad to help any public officials—in collaboration with the electric-service company, if one is involved—to work out requirements for a single corner or an entire city. These specialists are located in G-E offices throughout the country.

Available Without Cost

This service is available without cost. It is of top professional quality. It is offered by the company that makes every type of light source and luminaire that is economically feasible for any street lighting job—a company that is therefore sincerely interested in seeing that users get equipment that best meets their needs. *Apparatus Dept., General Electric Company, Schenectady 5, N. Y.*

GENERAL ELECTRIC

452-47

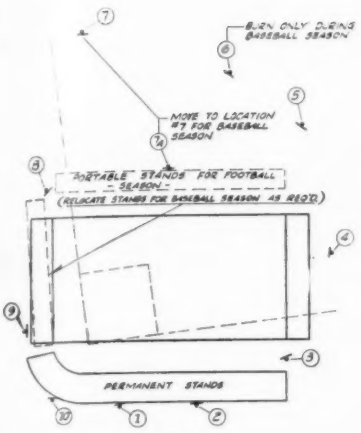

BURN ONLY DURING BASEBALL SEASON
MOVE TO LOCATION #7 FOR BASEBALL SEASON
PORTABLE STANDS FOR FOOTBALL SEASON
(RELOCATE STANDS FOR BASEBALL SEASON AS REQ'D)
PERMANENT STANDS

Figure 9

not directed upon the field in use will be turned off.

This presents only a few of the great assortment of possible baseball-football lighting plans. By proper initial planning, night baseball or football can be played successfully on the same general areas, thereby deriving the most complete utilization of grounds and equipment.

Welding Broken Lamp Post Saves City $32.50

FREQUENT targets of careless driving and other mishaps, the 70,000 iron lamp-posts in the city of New York have been a financial headache.

During the the last six years, it has often been impossible to obtain sufficient replacements. Until new units could be obtained, it was necessary to make repairs of damaged fixtures. These repairs were of a temporary nature until, early this year, the Welsbach Street Lighting Corporation, one of the maintenance contractors for the city, began experimenting with making permanent repairs to the bases.

The unit consists of a 450-pound casting of a type introduced into the city about 1910. In making repairs on the first base, the welders used the newly-developed Ni-Rod electrode, designed for making easily machinable and readily applied welds in cast iron. The repaired base had been girdled by a break which extended entirely around its girth.

Repairs were made with 5/32-inch electrodes. The upper half was supported by a block and tackle above the lower half, so that the edges of the break fitted together neatly. The two pieces were then tacked together with four small deposits of the new material at 90 degree intervals. Skip-welding, to keep stresses equal, completed the job. The cost, including electrodes and welder's time, was $12.50, or $32.50 less than the $45.00 replacement cost.

Airport Lighting Is Evolving

A SERIOUS obstacle to the growth of aviation is the inadequacy of airport facilities. The congestion caused by planes trying to land and take off during periods of impaired visibility threatens to choke airports, and hence the young industry. Two electrical developments under way to relieve the situation are radar and better lighting of the landing areas.

Events of the past few years have proved that previous methods of lighting runways are wholly inadequate. The bad weather problem is a complex one; no single type of runway marker-light can hope to do an adequate job during fogs, storms, and darkness. The degree of darkness, the height of fog, fog density, and the type and amount of precipitation all have a bearing on the proper illumination of runways.

A recent statement from the Westinghouse Electric Corporation reports that a beginning has been made providing the necessary lighting tools. From these better tools can be selected the methods required to meet the varying weather conditions that prevail at a given airport. The so-called contact lights, installed as buttons at intervals along a runway and throwing out a flat, horizontal fan of light across the runway surface, have been enormously improved in the past half dozen years. The unit, although interchangeable physically with its predecessor, can withstand loads of 200,000 pounds, or nearly ten times more. The light output has been stepped up from 60 candlepower to 2,000 candlepower.

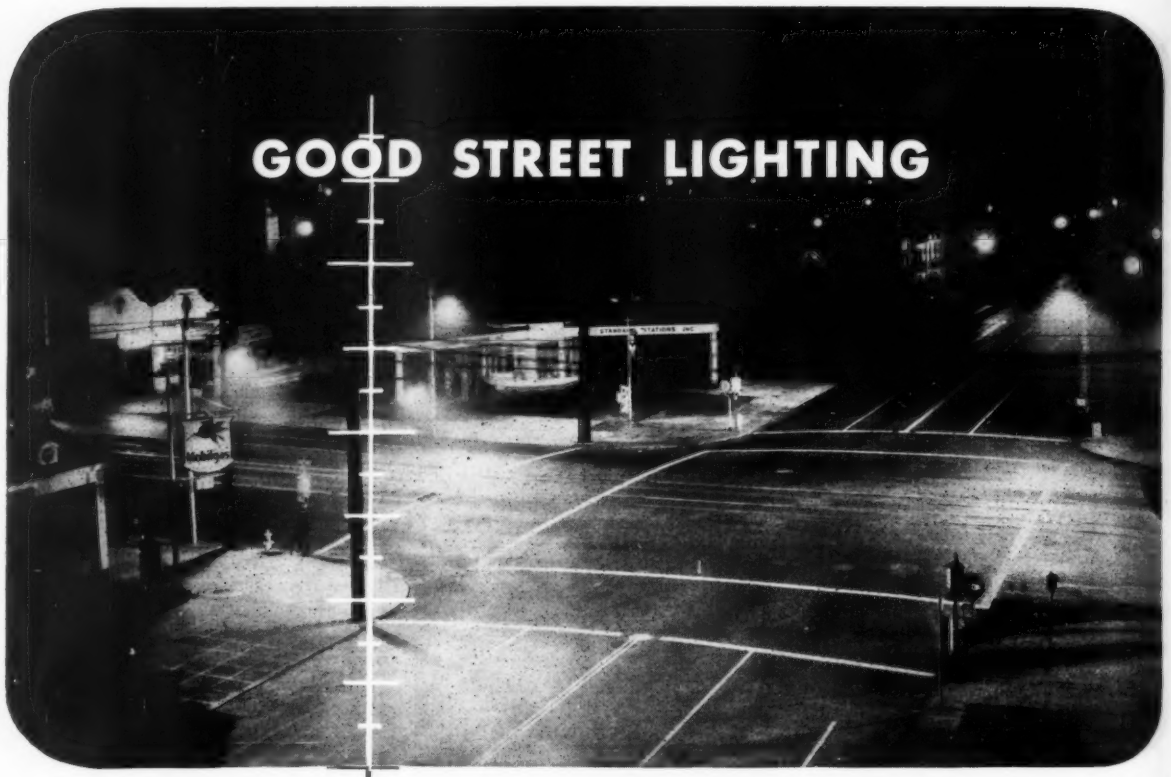
Upward curtains of light along each side of a runway are desirable. For this condition a special unit with a dual lens system has been built. One part of the unit gives a light output similar to a contact light. The other part throw an intense, fan-shaped beam on low-hanging, thin clouds to show the location of the runway to pilots approaching from above the cloud layers.

A new high-intensity contact light has been developed for instrument runways. Used with a simple control system, it makes available to the traffic director ten degrees of brightness, ranging from intensities as low as 10 candlepower to a high of over 100,000 candlepower. This enables the pilot to stay within the confines of the runway in the heaviest fog.

A recently developed approach-angle indicator will, in some cases, allow pilots to bring in their planes literally on beams of light. Three beams of light (red, green, and yellow) are sent upward at the proper angle from the end of the runway. By a novel and extremely efficient optical system, the three beams are narrow in vertical angle and sharply differentiated. The pilot should slide down along the green beam. Should he approach along the bottom or red beam his plane is too low; if the yellow beam is visible, he is too high.

These illumination aids will be supplemented by others now being developed. What final form they will take is not too clear. It is possible that some type of light source a hundred or more times more intense than anything now used will be the answer. Perhaps a modification of the high-intensity discharge lamps, such as have proved useful in high-speed photography, can be used. As one engineer expressed it: "We will have to find some simulated strokes of lighting so bright that the pilot can see his strip through the worst pea soup that ever develops. We believe it can be done."

Welding this lamp cost only $12.50



A civic benefit you can measure

. . . in Money Saved

For the complete story about the benefits of good street lighting . . . for helpful ideas you can use in promoting traffic safety in your community . . . see your local electric utility. And, send for new, free, case history booklet "Evidence"; write to The Street and Traffic Safety Lighting Bureau, 155 E. 44th Street, New York City.

IT'S been proved time after time—when *modern traffic safety lighting* goes *up,* accident costs go *down.*

Here are typical examples—actual dollars-and-cents figures that show economies realized through adequate street lighting.

In Hartford, Conn., savings of $461,464 in property damage and injury costs resulted from better lighting within a period of 8 years. In a small group of American communities, better lighting along 200 miles of hazardous thoroughfares brought savings of $5,891,000 in accident costs over a 4-year period.

Other cities, large and small, have found that inadequate street lighting boosts accidents and costs. But, when good lighting is installed, it not only cuts those figures, but also reduces crime, improves community appearance, and increases civic pride. Every dollar spent for good street lighting *saves* money—*pays* dividends.

GOOD STREET LIGHTING

THE SIGN OF A GOOD PLACE TO *LIVE*

Parking Meters in 924 Cities

DURING 1946 parking meters were installed in 450 additional cities, bringing the number of metered municipalities to 924. Comparative operating statistics for 1945 and 1946 for all these cities according to states have been compiled by Deane Dana, vice-President of Vehicular Parking Ltd.* The figures are given for population, number of meters, make, and yearly receipts. For the newly-metered cities, dates of installation are given. Of these, 270 are towns with less than 10,000 population. The largest city to install meters last year was St. Paul with 1,060 meters. Pennsylvania continues to lead, with 160 metered towns and cities, compared with 87 at the end of 1945.

Parking Ban Is Last Resort

STREETS are just so wide; vehicles have definite dimensions; when enough vehicles are placed upon a street to cover the pavement, there is traffic congestion. In most of the cities, magazines and newspapers are discussing the subject, and it is said that almost nowhere has it been solved.

The difficulty appears to be too many vehicles for the size and number of streets. The principal measures that control traffic were listed to the number of twenty-seven on page 127 of THE AMERICAN CITY for October 1946. Some of these apply to, or have been applied in, almost every city with a congestion problem.

What happens when measures indicated as appropriate have been taken, and there is continuing intolerable congestion, is told by Robert A. Mitchell, traffic engineer of the city of Philadelphia. "The only effective way to relieve traffic congestion is to make efficient use of our existing streets. When we realize that all the occupants of twenty-nine private automobiles can ride in one street car, trolley coach or bus, we can see how traffic tangles can be eliminated by curb parking bans. These throw the burden of local transportation on public transit vehicles and tend to keep private cars out of congested areas. Cities that have done this or are planning it include Albany, Chicago, Los Angeles, Louisville, Miami, New Orleans, and San Francisco."

The coup de grace to business-district parking, though an economical and quick way to reduce congestion, is a last resort. It should be taken only after a practical effort has been made to provide street and off-street parking facilities at the perimeter of the district.

**Parking Meters in the United States, 1946*—Vehicular Parking Ltd., 1422 Maple Ave. N.E., Canton 5, Ohio. 22 pp.

Timely Reinhold Books

THE ART OF BUILDING CITIES

By CAMILLO SITTE, *Translated from the German by* LT. CHARLES T. STEWART, USNR, *Former Director, The Urban Land Institute.*

The growing interest in slum clearance and general reconstruction of cities to provide better housing for better living makes the first appearance in English of this classic in its field especially welcome at this time. The author discusses the modern problems of city building according to basic artistic fundamentals. Thoroughly modern and constructive in its approach, practical in its viewpoint, architecturally sound. Profusely Illustrated.

130 Pages 8½" x 9¼" $6.00

HOUSING AND CITIZENSHIP

A Study of Low-Cost Housing

By MAJOR GEORGE HERBERT GRAY, *F.A.I.A., A.I.A., Consultant in Architecture and City Planning*

A sound, well-coordinated plan for low-cost housing in both urban and rural areas in the United States. Based on the thesis that healthy and responsible citizenship is dependent on adequate living accommodations for all the people, the author attacks the problem of rent, and discusses all the sociological implications of the "ill-housed third" of our population. 46 full-page plates. Many charts and tables.

250 Pages 8½" x 11" $7.50

NEW CITY PATTERNS

By S. E. SANDERS, *Director, City Planning Research, FWA, PBA, Washington, D. C.,* and A. J. RABUCK, *City Planning Research, PBA, Washington, D. C.*

One of the most fascinating books ever written on urban design problems. Contains a profusion of illustrations ranging from the seamy side of blighted areas, through low-cost and medium housing projects, to the more ambitious developments expected in the near future. The book discusses metropolitan planning commissions, and the exact methods to be followed to insure that each new development or improvement shall coincide with a carefully predetermined plan.

200 pages 8½" x 11" $8.00

THE CITY

Its Growth, Its Decay, Its Future

By ELIEL SAARINEN, *Director, Cranbrook Academy, Detroit, Mich.*

The most important and comprehensive work yet written on the future of the city. The author points out the defects of modern cities and sets forth a practical, corrective plan based on urban rehabilitation and decentralization. Of vital interest to all municipal officials concerned with progressive community planning and development.

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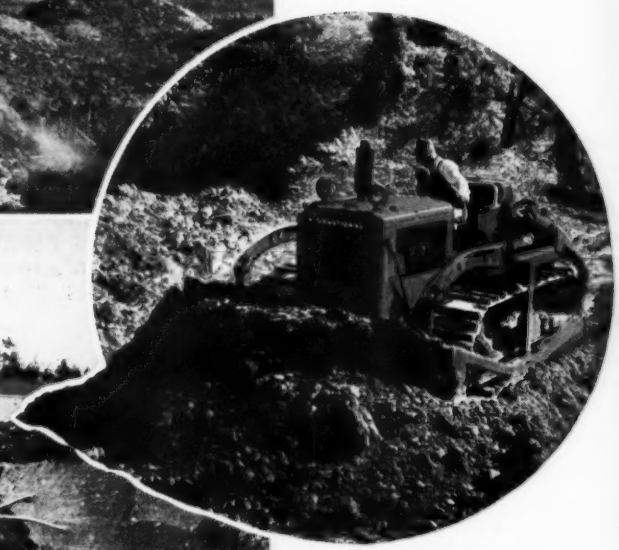

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Municipal and Civic Publications

(*Continued from page* 115)

Planning Philosophy from Peru

POR EL FUERO DE UNA BUENA CIUDAD.—*By Emilio Harth-Terre, Chief of section of City Esthetics, Department of Promotion and Public Works, Lima, Peru.* 1946. 72. *pp.* (*Spanish*).

This pamphlet, written in Spanish, consists of a series of articles written by Harth-Terre, a Peruvian civil engineer and architect, discussing the reasons, importance and necessity of city planning. Readers of THE AMERICAN CITY who read Spanish will find the material interesting for its statement of philosophy on city planning.

Citizen Programs at Work

SMALL COMMUNITIES IN ACTION—*By Jean and Jess Ogden. Harper and Brothers, 49 E. 33rd St., New York 16, N. Y.* 1946. 244 *pp.* $3.00.

Some thirty-four stories telling how communities have helped themselves through the efforts of their own citizens are presented in this book. The stories were chosen from among those which have appeared in the *New Dominion Series* leaflets published by the Extension Division of the University of Virginia since 1941.

These "how-to-do it" accounts, describing "experimental approaches to democratic living that are being tried effectively in various communities," cover a wide range of procedures. Among the successful programs reported are those involving planning for health and social well-being; experiments with community councils and with local and regional workshops in community development; county-wide educational programs, and the use of new techniques involving leaflets, bulletins, posters, slides, and motion pictures.

Emphasis is focussed on the necessity for wide participation in the planning and execution of a community program. The authors believe that the ideas involved in their accounts are fundamental to democracy, and, therefore, universal in their application to American communities.

An Economic Study

THE ECONOMY OF THE CINCINNATI METROPOLITAN AREA—*City Planning Commission, Cincinnati, Ohio.* 1946. 126 *pp.* $2.50 *per copy.*

An elaborate, carefully prepared document which points out that modern urban areas owe their existence to the simple fact that they are centers for the production and distribution of goods and services. If this economic function is taken away, the study contends the reason for the inhabitants living there is removed.

The report also suggests how Cincinnati might better assure future economic development on a sound and balanced basis.

California Planning

CALIFORNIA REPORTS ON PLANNING—*State Reconstruction and Reemployment Commission, 631 J St., Sacramento, Calif.* 1947. 64 *pp.*

A most encouraging report, citing the great increase in California planning activity during the past year. The pamphlet contains statistical data, membership rosters, and examples of work of both city and county planning commissions in California. It also includes a section on state planning, a suggested outline of an annual report for city and county planning commissions, and a compilation of California's planning laws.

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Ferri-Floc is a superior and economical coagulant developed to provide dependable, low cost treatment of water, sewage, industrial waste and sludge conditioning. Ferri-Floc is a partially hydrated ferric sulphate—a stable, free flowing salt. Granular in shape, it can be fed through any standard dry feeding, or liquid feed equipment, and being partially hydrated, it is only mildly hygroscopic. It is easy and safe to handle, does not pass through any gummy stage when going into solution—does *not* require careful proportioning of water to salt. Ferri-Floc can be shipped in 100 pound bags or in bulk cars, and may be stored in open bins for indefinite period of time. It is most economical and dependable. For complete details, write to the Tennessee Corporation, Grant Building, Atlanta 1, Georgia.

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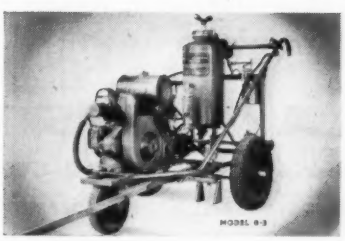
This is the Kelly-Creswell Model that will SOLVE your Municipal Zone-Marking Problems.



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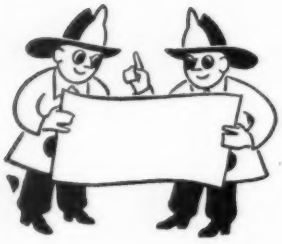
WORLD'S STANDARD OF COMPARISON



"HOW DOES IT COMPARE WITH A **MATHEWS?**"

That is a stock question in waterworks circles, for Mathews have been the standard of comparison a long time—generations, in fact. One reason is the barrel: It contains all the working parts, and is *removable*. Suppose a Mathews should be damaged by a truck. You just unscrew the barrel and replace it with a spare—all in a few minutes. It's an *above-ground* job, with no long interruption in service, no breaking of the pavement, no digging. The end result is more protection and less cost. This is an exclusive Mathews feature.

OTHER FEATURES OF MATHEWS LEADERSHIP

- Operating nut shield to keep out rain and dirt
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- Compression-type main valve, always seating tight
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- Replaceable head permits change in nozzle outlets
- Nozzle levels can be raised or lowered
- Barrel screws into bronze bushing in elbow
- Free-moving protection case takes thrust of freezing earth
- Positive, automatic drain valve—insuring dry barrel
- A new barrel makes the oldest Mathews good as new

MATHEWS HYDRANTS

Made by **R. D. WOOD COMPANY**

PUBLIC LEDGER BUILDING, INDEPENDENCE SQUARE, PHILADELPHIA 5, PA.

MANUFACTURERS OF SAND-SPUN PIPE (CENTRIFUGALLY CAST IN SAND MOLDS) AND R. D. WOOD GATE VALVES

News and Illustrations

Items of interest to city, town and county officials and others concerned with the economical construction and efficient operation of public improvement undertakings

This Is the House the Tournalayer Builds

Concrete houses, capable of wide variations in design, reinforced with steel mesh throughout, and laid by the Tournalayer in a matter of hours, emerge from steel forms complete with walls, roof, eaves, room outlets, light fixture boxes, and electrical conduit. Produced on the site, the houses are fireproof, termite proof, and windproof. From wet concrete to the completed house, which measures 32 ft. 8 in. long, 24 ft. wide, and 10 ft. high, is a matter of as little as 17¼ hours.

The Tournalayer, invented by R. G. LeTourneau, is a mammoth mobile machine comprised of a specially designed two-wheeled prime mover coupled to a huge "U"-shaped trailer. A complete set of forms consisting of an outside form, two inner steel forms, and a base complete the unit. The outer boxlike form, open top and bottom, when lowered over the inner forms, leaves a five-inch space between to form the outside walls of a basic concrete structure. This space flares out at the bottom to 12 inches for foundation and bearing area. Inside forms, secured to the base, shape the inside walls and a five-inch partition which runs the length of the structure. Ceilings, roof, and eaves are formed by pouring concrete over the top of the outside form, which extends 8 inches above the inside steel forms. outside steel forms can be expanded away from the concrete by means of eccentric expansion hinges at the four corners. To release the trailer from the form and connect it to another form, it is only necessary to pull three pins, as the suspension cables are fastened to the outside form in three places only. In a radical departure from conventional concrete construction, the Tournalayer lifts the outside form and the concrete house together over the top of the inside form and transports the house, all in one piece, to the permanent site. There the outside form is easily removed from the house and returned for re-use. The inside form need never be moved from its original location until all houses in the area have been poured.

Tournalayer home building equipment is leased, not sold. Because of the rental investment involved the Tournalayer is practicable for contractors having large scale mass housing projects of fifty or more units. Contractors who do not already have fast concrete mixing and pouring facilities and a heaving lifting mobile crane can lease the LeTourneau Tournamixer and Tournecrane along with Tournalayer.

The equipment is leased to the home building industry on a lease-royalty basis; the company will not go into the home building business. No prices

The Tournalayer is a house building machine that constructs concrete houses on site.

And this is the house the Tournalayer builds.

When the concrete has set, and the house is ready to be transported to a permanent site, a simple mechanical device, released inside the forms, separates the forms from the concrete.

Four electric motors are mounted on the trailer unit; one is mounted on each side toward the rear and one in front at the middle of the large cross beam forming a three-point cable suspension for independent leveling of the house; there is a main hoist motor which raises the house from all three points at once. The output of these four motors is 50 foot-pounds each. The are quoted by LeTourneau for finished homes, but it is believed that the sale price probably will be below $6,000 per house.

Industrial projects utilizing the machine are now under construction at LeTourneau's Longview, Texas, plant for the company's employes; in Vicksburgh, Miss., Corpus Christi, Texas, and Sao Paulo, Brazil, S. A.

The Tournalayer is manufactured by R. G. LeTourneau, Inc., Peoria, Ill.

Barber-Greene Appoints Distributors

The Barber-Greene Co., Aurora, Ill., has appointed the State Equipment Co., Harrisburg, Pa., as exclusive distributor to handle sales, service and repairs in central and southern Pennsylvania, and the Townsco Equipment Co. as exclusive distributor of its construction and industrial divisions in Oklahoma.

Barber-Greene products being handled by the firms include bituminous mixing- and paving-machines, portable, bulk-material loaders, snow loaders, ditchers, portable and permanent belt conveyors, and coal-handling equipment for retail and industrial applications.

State Equipment has a branch office at Wilkes-Barre, Pa.

American Coach and Body Makes Appointments

As part of an over-all plan for growth and development, The American Coach & Body Co., Cleveland, Ohio, has made several additions to its executive staff.

Charles M. Brown

Robert W. Hadley was elected president and Harold F. Smith, treasurer; both were elected directors. Charles M. Brown received the appointment of sales manager of the Oakland, Calif., section of the company.

Mr. Hadley began his career in the machinery business with the Toledo Machine & Tool Co., rising from machinist to vice-president in fifteen years.

Starting his business career with Willys-Overland, Mr. Smith specialized in office administration. In 1929, he joined Toledo Machine & Tool Co. as an auditor. He became a director in 1931.

Mr. Brown entered the steel fabricating business in 1932 with National Steel Products Co., Kansas City, Mo., and was sales engineer there until 1938. Until the war, he was factory representative for McCabe Powers Auto Body Co., St. Louis, Mo. From 1942, he was associated with Consolidated Aircraft Corp., San Diego.

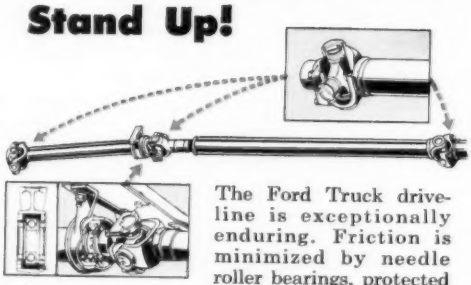
"WE AGREE— FORD TRUCKS LAST LONGER!"

Mr. Robert S. Swanson, treasurer, S. B. Thomas, Inc., Long Island City, N. Y., wrote recently: "In our fleet of 128 Ford Trucks, 36 are over 10 years old, and 6 are 1932 models—14 years old! Their reliability and economy have given us good reason to be thankful that Ford Trucks Last Longer."

THE 6 YOUR PICK OF POWER THE V-8

Tens of thousands of Ford Trucks have proved their endurance in the tough service of handling bulk building materials, ores, earth and coal. This 2-ton Dump Truck chassis carries a 3- to 4-yard heavy duty body and hoist by St. Paul Hydraulic Hoist Division of Gar Wood Industries, Minneapolis, Minnesota.

ONE Big Reason— Ford Drive-Line Units Stand Up!



The Ford Truck driveline is exceptionally enduring. Friction is minimized by needle roller bearings, protected by relief fittings, in all universal joints in all models. Half-ton chassis have two such joints. All other models (except 101" w.b.) have three, and, in addition, a heavy duty ball center bearing. This bearing is self-aligning—cushion-mounted in live rubber. It is leakproof, excluding dust and water. It is unaffected by frame flexing and is notably long-lived. Large-diameter tubular steel propeller shafts with forged ends are properly balanced. This assures freedom from destructive vibration and great strength without excess weight.

Ford

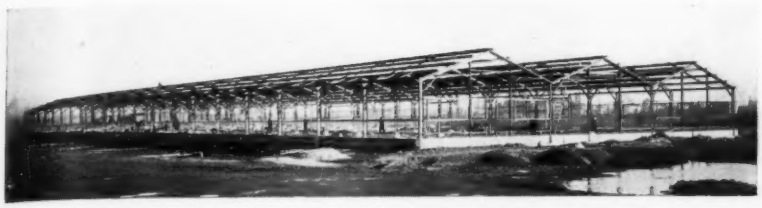
ONLY FORD GIVES YOU ALL THESE LONG-LIFE TRUCK FEATURES: Either of two great engines, the V-8 or the SIX, both with full pressure lubrication to all main, connecting-rod and camshaft bearings, Flightlight oil-saving 4-ring pistons, precision-type heat-resistant bearings and fast-warmup temperature control • rear axle design that takes all weight load off the shafts (¾-floating in half ton units, full-floating in all others) • heavy channel section frames, *doubled* between springs in heavy duty models • big, self-centering brakes, with heavy, cast drum surfaces, non-warping and score-resistant—all told, *more than fifty* such examples of Ford endurance-engineering.

NATURALLY, FORD TRUCKS LAST LONGER! Latest 1946 registration figures show that 78% of all 1936 model Ford Trucks in use 9 years ago are still on the job! That's up to 15.8% better than the records of the next four sales leaders—5% better than the average of all four. More than 100 body-chassis combinations. See your Ford Dealer!

MORE FORD TRUCKS IN USE TODAY THAN ANY OTHER MAKE

Warehouse Space Airport Hangars

adjustable in 20-foot increments with inside clearance at eaves from 12 feet are now in production.



Pictured above is the framework of the structure being erected in Bayonne, N. J., by the Luria Engineering Co. This basic framework may be covered in a variety of materials.

A combination of three Luria Clear Span Standard units of 40 feet each is being erected in Bayonne, N. J., for warehouse space for a New Jersey corporation. The building is 120 feet wide and 400 feet long giving 48,000 square feet of floor area. The project is typical of what the Luria Engineering Co., 500 Fifth Ave., New York 18, N. Y., can do for municipalities in supplying permanent warehouses and shop space quickly.

Fabricated of heavy structural steel, the complete framework is now ready for the application of corrugated steel siding and roofing. While steel will be used on this project, the buildings will be adaptable to the use of various materials for the exterior finish. They can be expanded with auxiliary additions for shop or office space.

Luria's unit system of expansion in both width and length permits assembly in unlimited variations of size and arrangement. Selection from numerous standard alternates allows a choice of location for doors and sash.

Luria Standard Buildings in widths from 40 feet to 100 feet with lengths

Also offered are standard production line built hangars and utility buildings for airports having the same flexible features and choice of alternates that are available with their Standard Industrial Buildings.

Control Liquid Levels Electrically

There are no floats or moving parts in liquid in this all-electric system of controlling water, sewage, or other liquid levels. The system, developed by the B/W Controller Corp., Birmingham, Mich., uses an induction relay and electrodes suspended from electrode holders. The controls make it possible to hold the level of a liquid within close tolerances and to remove the possibility of failure arising from moving parts and leaky floats.

The control circuits can be arranged to give a variety of level indications if needed. It can be used to advantage in overhead storage-tank installations, in ground storage reservoirs, in pressure tanks, and in sewage wet wells. Catalog 147 describes its uses.

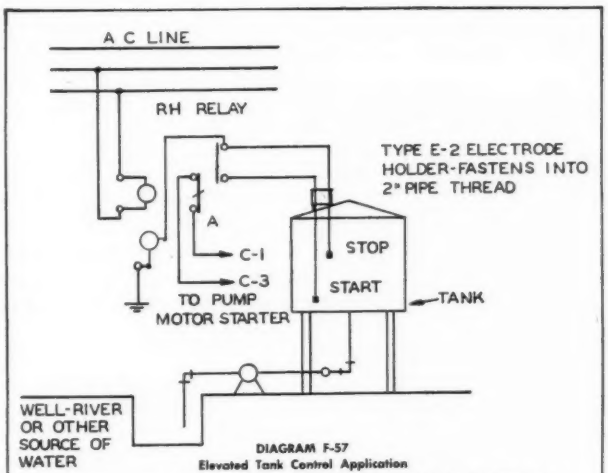


DIAGRAM F-57
Elevated Tank Control Application

OPERATION: When water reaches stop electrode, contacts (A) in the RH relay open to shut down the pump motor. When water reaches lower, or start electrode, contacts (A) close and pump motor starts.

GENERAL: This diagram shows a Type RH relay used to control the operations of a pump delivering water into an elevated tank. The electrodes in the tank, if levels are to be maintained fairly close to the top, may be brass rod. When great variations of levels are desired, it is recommended that electrodes, suspended from the E-2 holder on wire, be used in place of the rod.

This shows a typical simple application of the B/W control.

Pacific Union Marbelite Now Pacific Union Metal Co.

The name of The Pacific Union Marbelite Co. has been changed to The Pacific Union Metal Co., for closer identification with its parent company. Pacific Union Metal, manufacturers of "Marbelite," centrifugally spun concrete street and highway-lighting standards, is a subsidiary of The Union Metal Mfg. Co., Canton, Ohio. The subsidiary is also agent in Southern California for all products of the parent company.

Rowold Receives Appointment

Henry Rowold, vice-president and national accounts manager of Mack-International Motor Truck Corp., Empire State Bldg., New York, N. Y., has been appointed assistant general sales manager and will combine his new duties with those of his other positions.

Adequate Street Markings and Proper Installations

Not only is it important to have city streets identified by street signs, but it is important that the motorist know all the regulations of the street on which he is traveling — special turns, railroad crossings, emergency conditions.

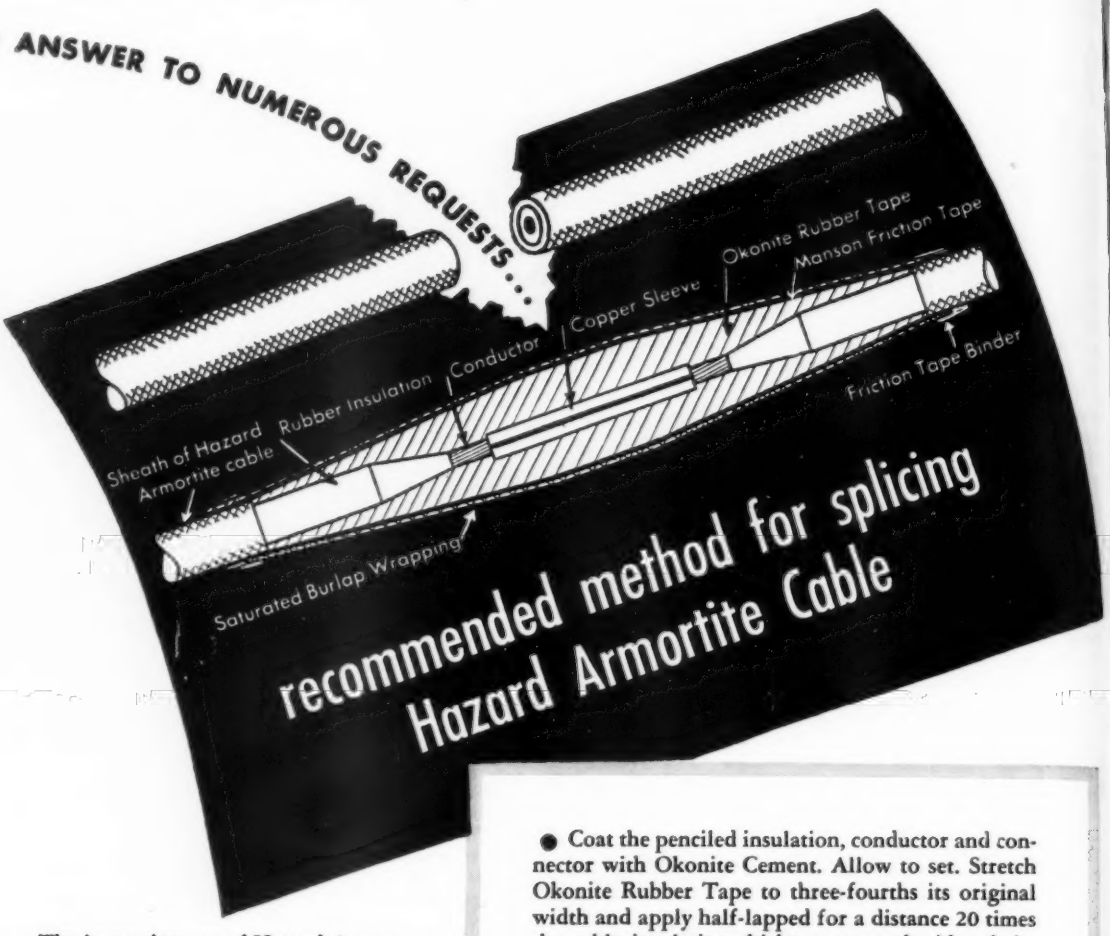
If special signs or posts are required, The Hunt Co., 3700 W. Six Mile Rd., Detroit 21, Mich., can supply them from stock in the majority of cases. Any special wordings will be supplied on order, or blank steel signs for your own processing.

Parking signs, 12 inches by 18 inches, are embossed on 18-gauge steel in black, green, or red on white. Bases and standards can be furnished for any sign. Stop signs are available in 18, 24, and 36 inches square. Round warning signs of 24-inch and 30-inch diameters, and many other sizes and shapes are available. Signs may be obtained that can be attached to light standards of any size or manufacture, incorporating a bracket that need not be removed to detach the sign.

Other products include sign posts, route marker posts, snow fence posts, and delineator posts.

Literature may be obtained from the manufacturer.

IN ANSWER TO NUMEROUS REQUESTS...



recommended method for splicing Hazard Armortite Cable

The increasing use of Hazard Armortite Underground Cable for modern street, highway and airport lighting has brought forth many inquiries as to how this non-metallic sheathed cable should be spliced. You'll find the recommended method described at right simple and foolproof. The Hazard Armortite Bulletin describes this outstanding cable in detail:—its construction, uses and advantages. Write for a copy today to Hazard Insulated Wire Works, Division of The Okonite Company, Wilkes-Barre, Pennsylvania.

- Coat the penciled insulation, conductor and connector with Okonite Cement. Allow to set. Stretch Okonite Rubber Tape to three-fourths its original width and apply half-lapped for a distance 20 times the cable insulation thickness on each side of the connector until the thickness over the connector is 1½ times the cable insulation thickness. Rolling down successive layers with a warm roller or knife handle will relieve strains and prevent voids.

- Protect the joint with Manson Friction Tape painted with Okolite Weatherproof Paint. Wrap over the painted friction tape two layers of saturated burlap bound at the free ends with a few turns of friction tape.

- Multi-conductor cables are spliced the same way, with Okonite Rubber Tape and Manson Friction Tape on each conductor. Then the conductors are bound together with two layers of Manson Tape, painted with Okolite Weatherproof Paint and covered with two layers of saturated burlap bound down with friction tape.

5058

HAZARD

insulated wires and cables for every electrical use

Scrap Iron Prices At All-Time High

Many towns and cities needing iron and steel products (and which ones do not) will speed up deliveries by getting behind the scrap-iron drive organized by the Allis-Chalmers Mfg. Co., Milwaukee, Wis.

In the face of a 25% reduction in pig-iron allotment, the company's Tractor Division is directing appeals to farmers, contractors, and equipment users to haul scrap iron to the nearest scrap dealer.

Normally, the steel that is used remains in the country. For example, the steel that is used today for the manufacture of an automobile comes back as scrap, seven to ten years hence.

However, during the war, large quantities of potential scrap was lost—ships that were sunk, ammunition fired, lend-lease equipment.

In response to almost unprecedented demand, the market price of scrap has risen sharply and even capacity production of iron foundries and steel mills has been insufficient to offset this deficiency.

Consoer, Townsend Move Offices

The firm of Consoer, Townsend & Associates, consulting engineers, has moved its offices from 211 West Wacker Drive to 351 East Ohio St., Chicago, Ill.

International Harvester Cuts Prices

Carrying out its announced program of reducing prices by approximately $20,000,000 a year, the International Harvester Co., 180 North Michigan Ave., Chicago 1, Ill., has announced specific price reductions on 163 basic models of tractors, farm machines, industrial power equipment, and motor trucks. This became effective March 10th.

The individual reductions ranged from $2.50 to $300, a range of from 1% to 23.8%.

Mathieson Expansion Program

In order to increase production of caustic soda and soda ash, both of which are on the shortage list, The Mathieson Alkali Works (Inc.), 60 E. 42nd St., New York 17, N. Y., began a program of modernization of its plants in 1945 which will be completed late in 1947. To date, the cost has been approximately $9,500,000, but production has already increased tremendously. The Niagara Falls plant has virtually completed its project for doubling production of sodium chloride announced some time ago, according to George W. Dolan, president of the company.

Coin Handling Machines

Coin machines are being used by many cities, especially those with parking meters.

The Brandt coin sorter and counter, illustrated here, has double receptacles. As sorted and counted, the coins are deposited in the upper row of receptacles by means of a lever. Coins may fall directly into bags when sorted and then counted by substituting bag attachments for the coin receptacles. The machine is compact and portable. Mixed lots of pennies, nickles, dimes, quarters, and half-dollars are sorted and counted by this motor-driven machine. A special machine can be supplied to handle tokens in addition to coins.

The Bank Special, a motor-driven coin-counting and packaging machine, is made by the Brandt Automatic Cashier Co., Watertown, Wis.

The line includes both a hand-operated and a motor-driven machine. The machines may be set by the operator for continuous count or counts in quantities of 10, 15, 20, 25, 30, 35, 40, 45, or 50.

Brandt automatic cashiers are of two types, payer and changer.

Alta, Iowa, Gets Diesel

When the Alta, Iowa, Board of Trustees was invited by The National Supply Co., Springfield, Ohio, to come to Springfield, the board members expected only to see how the Superior diesel engine they were going to buy would be built. Instead, they saw their own completed engine, enroute to Alta the day after the contract was signed. This immediate and unexpected delivery was possible because a change in delivery schedules made the diesel immediately available to that city.

Alta's new engine, 1,440 hp, has a continuous capacity of 1,000-kw output with a rated 10% overload for a two-hour period. The installation will provide Alta with power, and a large part will be available for farmers.

C. D. Tinker, second from right, shows Alta's new Superior diesel to members of the Alta Board of Trustees (left to right) Lester Hatch, C. C. Olson, Alvin J. Smit, and (extreme right) John A. Lindle.

"WHEN IT'S HEAVY GOING GIVE ME A WARD LA FRANCE"

On jobs where trucks must take real punishment and stand up, you can't beat a heavy-duty truck built with frame and body that can take it. The rugged Ward LaFrance fills the bill.

The trend is definitely to heavy-duty trucks because of proven performance and economy. Particularly in the construction field, up to 23% increase in demand for heavy-duty trucks is reported by contractors and highway engineers. In other fields of trucking, the big tractor-trailer combinations are hauling more and more tonnage.

See for yourself the advantages offered by the big, new Ward LaFrance—extra load capacity, reserve powered engine, heavy-duty construction throughout. Get the performance you have been looking for . . . and at low cost. See your local dealer today.

Look for the big truck with the exclusive "flat top" fender

WARD LAFRANCE TRUCK DIVISION
Great American Industries, Inc.

ELMIRA, NEW YORK

E. F. Schaefer New President of Gardner- Denver

Two executive personnel changes were made at the annual stockholders meeting of the Gardner-Denver Co., Quincy, Ill., with the election of Edgar F. Schaefer to the position of president.

E. F. Schaefer

Mr. Schaefer, formerly executive vice - president, is replacing H. G. Myers, who became chairman of the executive board.

Since 1919, when Mr. Schaefer joined Gardner-Denver, he has held the position of vice-president and executive vice-president. Mr. Myers joined the company in 1927 as chief engineer. In 1929, he was made executive vice-president and in 1935 was elected president.

Kinetic Mixing Does Quick Patching

A new principle of mixing that delivers a thoroughly mixed batch every 30 seconds by an easily transportable machine is the latest contribution to the maintenance field by the Foote Co., Inc., Nunda, N. Y.

The Foote Kinetic Mixer was constructed to answer three requirements: thorough mixing of all types of asphaltic mixes; a high-volume output with low equipment investment, and portability.

The thorough mixing of asphalt and wet aggregates without the necessity of drying is accomplished by the use of centrifugal force created by a drum

speed of 65 rpm, holding the aggregate out against the inside face of the drum. The linear travel of about 780 feet per minute stores up kinetic energy to do the work of mixing and coating. The energy converter blade continuously peels a center stream of aggregate off the drum face, leaving a thin protective mat on the drum. The action of the blade in reducing the speed of the material sets up a back pressure which starts a mulling action that forces the fast moving particles through the slow ones. The solids, as a result, actually are behaving like a liquid.

Added to this, the cross-mixing blades cause a side-to-side mixing action which results in the fanning out of a smooth layer across the full width of the drum.

The second point, high volume output, has been accomplished to an amazing degree with the yield of as high as two batches of three cubic feet charged, mixed, and discharged per minute.

The mixer has an adjustable truck hitch and pneumatic tires, making it easily and quickly transportable.

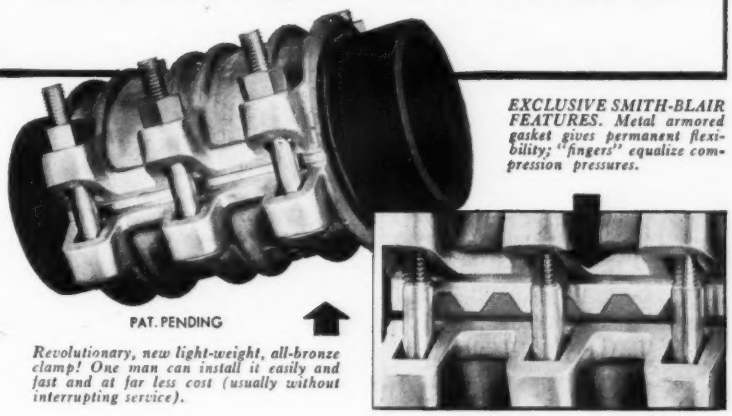
The Foote Co. will send you additional data and specifications upon request. Write for Bulletin No. K-100.

Stencil Sheet Improvement

A new type of cushion sheet known as Mimeograph "Type-White" for use with the mimeotype (blue) stencil sheet is being distributed by the manufacturers, A. B. Dick Co., 720 W. Jackson Blvd., Chicago 6, Ill.

The new cushion sheet does not interfere with stencil and makes the stencil easier to read when typing.

This *NEW* CLAMP Repairs Broken Pipe in 6 Minutes



EXCLUSIVE SMITH-BLAIR FEATURES. Metal armored gasket gives permanent flexibility; "fingers" equalize compression pressures.

PAT. PENDING

Revolutionary, new light-weight, all-bronze clamp! One man can install it easily and fast and at far less cost (usually without interrupting service).

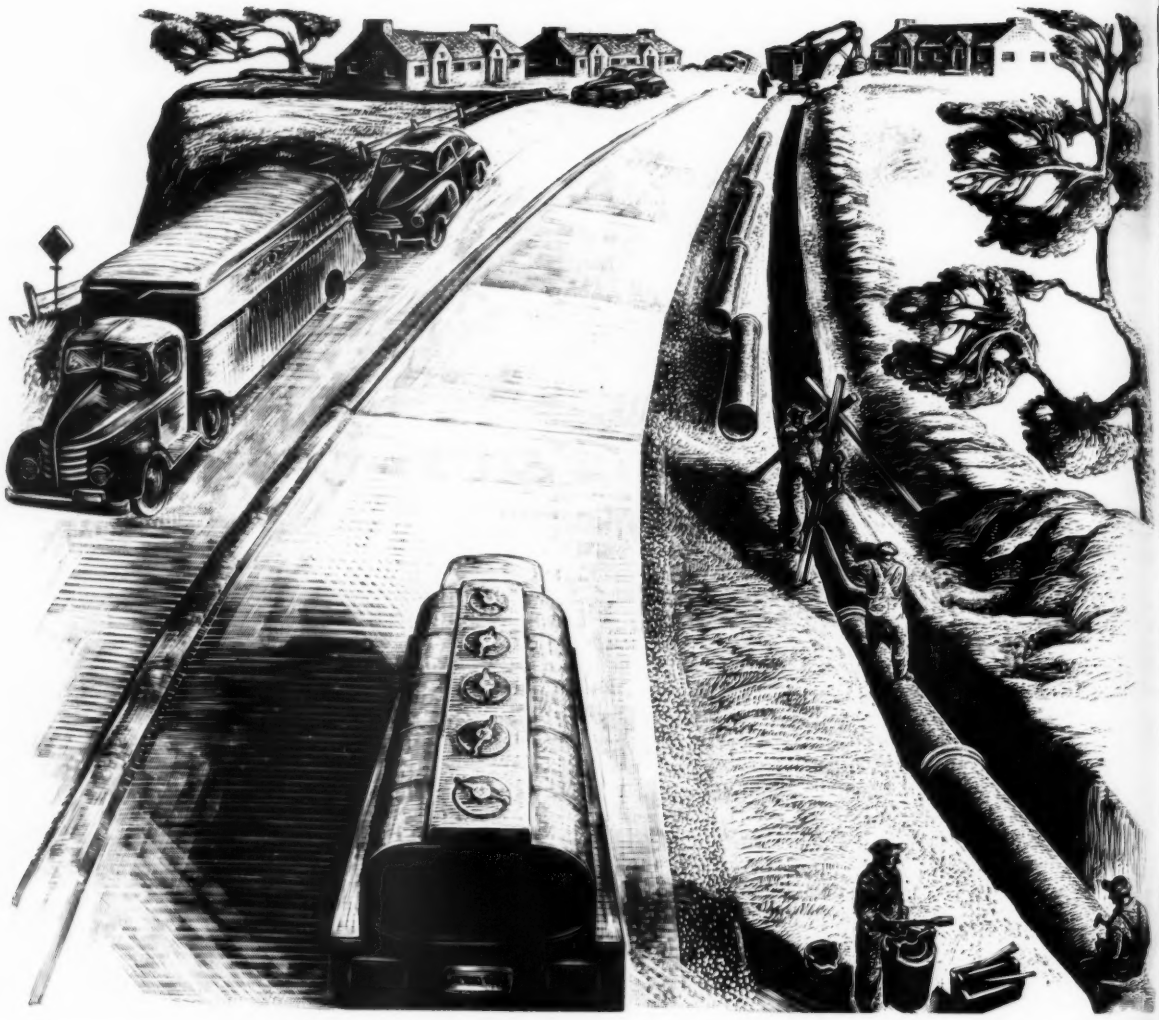
One man can repair a broken or split cast iron or asbestos-cement water pipe in 6 minutes. (Exclusive of excavating time.) Place this remarkable new coupling under and over the pipe break—tighten 6 nuts from top-side—that's all! Smith-Blair guarantees the permanence and pressure holding ability of this clamp (up to 1000 p.s.i. for 4" size!). New sealing and clamping principles put this clamp in a class by itself! Available for 4", 6", 8", 10" and 12" pipe. Two lengths 7½" (illustrated) and 15". When ordering specify for cast iron or cement-asbestos pipe.

Now stocked by Smith-Blair Distributors in Principal Cities. SB-12

SMITH BLAIR INC.
Water works supplies and specialties
SOUTH SAN FRANCISCO • CALIFORNIA

The New, Better
FAST ACTION
REPAIR CLAMP
CAST BRONZE • FULL CIRCLE

ALSO...BRONZE SERVICE CLAMPS • STEEL & C. I. FLEXIBLE COUPLINGS • FLEXIBLE REDUCING COUPLINGS



Original Woodcut by Lynd Ward

When authorizing extensions, utilities must often take the long view in estimating possible revenue. How logical, therefore, to specify long-lived U. S. Cast Iron Pipe for extensions to water, gas or sewerage lines. Cast iron mains not only serve for centuries but they serve at minimum annual maintenance cost—a statement you do not have to take on faith—a statement proved by performance records over many years throughout the world.

U.S.
cast iron
PIPE

U. S. PIPE & FOUNDRY CO.
General Offices: Burlington, N. J.
Plants and Sales Offices throughout U.S.A.

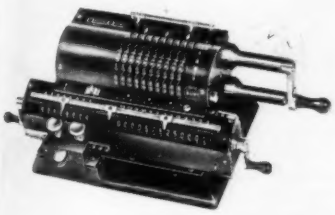
A Portable Snow Plow Laboratory

The Root Spring Scraper Co.'s laboratory on wheels.

During the past winter, a surplus army truck converted into a portable laboratory with a Root-Kalamazoo snow plow and a hydraulic undertruck scraper attached, has been touring the snow states to demonstrate and test the products manufactured by the Root Spring Scraper Co., Kalamazoo, Mich. In this way, the company has gathered useful data which will be passed on to users of snow plows and highway maintenance men.

Proceeding on the assumption that some of the most valuable research is done in the field rather than in the laboratory, the company is putting this field - laboratory - work doctrine into practice.

Fast, Handy Calculator



The Original Odhner portable calculator. Note the single crank for all arithmetic calculations.

The reappearance of a Swedish-made calculating machine on the American market should be interesting to municipal officials who want smaller and easily portable calculators. The Original-Odhner is not only available, but can be purchased from stock from Ivan Sorvall, 210 Fifth Ave., New York 10, N. Y., sole distributor.

The machine has three registers: the setting board, the result register, and the proof register. Any figure to be multiplied or divided is set on the setting board by pulling the levers down to the figure wanted.

The result register takes care of addition and subtraction. When the operating crank is turned forward the numbers will be added. When it is turned backwards they will be subtracted. The result register shows the product in multiplication and the dividend in division.

The proof register shows each turn made by the operating crank. Positive turns — addition and multiplication — show in white figures, while negative turns—subtraction and division—show in red figures. If the figure on the setting board has been multiplied by 345, for example, the multiplier 345 will show in the proof register after the multiplication has been completed.

One of the special features of the machine is the back transfer device. This makes it possible to transfer a number from the result-register straight to the setting board. It is especially suitable, therefore, for calculations in which a product obtained is to be multiplied by a third factor.

Additional information and full specifications and price listings may be obtained from Sorall's.

Now the Welsbach Corp.

At the annual meeting of stockholders held in April, it was voted to change the name of the Welsbach Engineering and Management Corp. to The Welsbach Corp., effective May 1st.

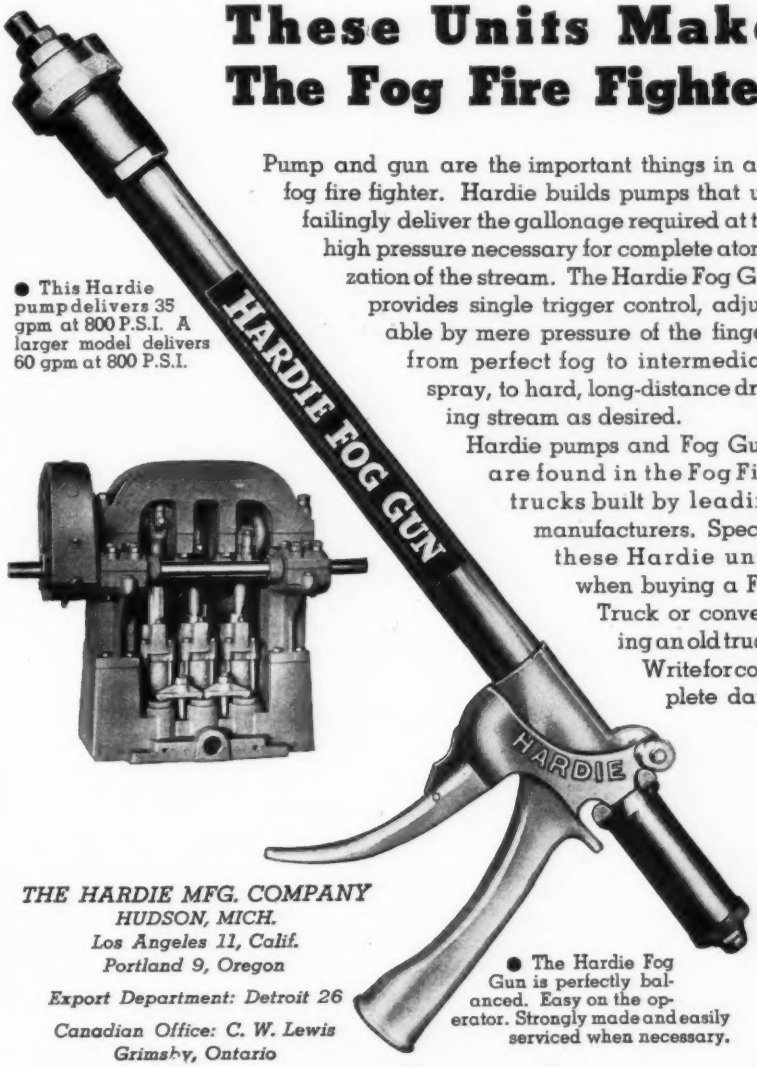
It was also decided that all the domestic wholly-owned subsidiaries are to be merged with the parent company, The Welsbach Corp. The subsidiaries are Kitson Co.; Ozone Processes, Inc.; Welsbach Street Lighting Co. of America, and American Street Lighting Co.

Welsbach International, Inc., and Welsbach de Mexico, S. A., both operating in Latin America, will remain wholly-owned subsidiaries.

These Units Make The Fog Fire Fighter

Pump and gun are the important things in any fog fire fighter. Hardie builds pumps that unfailingly deliver the gallonage required at the high pressure necessary for complete atomization of the stream. The Hardie Fog Gun provides single trigger control, adjustable by mere pressure of the fingers from perfect fog to intermediate spray, to hard, long-distance driving stream as desired.

Hardie pumps and Fog Guns are found in the Fog Fire trucks built by leading manufacturers. Specify these Hardie units when buying a Fog Truck or converting an old truck. Write for complete data.



● This Hardie pump delivers 35 gpm at 800 P.S.I. A larger model delivers 60 gpm at 800 P.S.I.

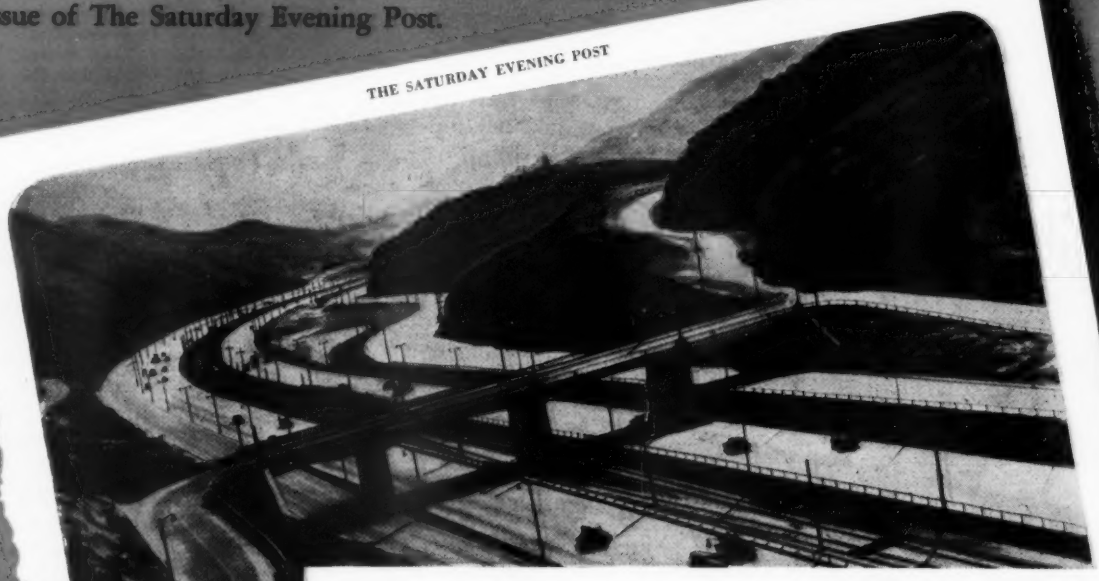
● The Hardie Fog Gun is perfectly balanced. Easy on the operator. Strongly made and easily serviced when necessary.

THE HARDIE MFG. COMPANY
HUDSON, MICH.
Los Angeles 11, Calif.
Portland 9, Oregon
Export Department: Detroit 26
Canadian Office: C. W. Lewis
Grimsby, Ontario

★ H ★ A ★ R ★ D ★ I ★ E
High Pressure PUMPS AND FOG GUNS
for Fog Fire Fighters

In Recognition of the steps taken or planned by numerous progressive cities throughout the country to unsnarl the traffic problem, the Allis-Chalmers Tractor Division ran this advertisement in four colors in the May 3 issue of The Saturday Evening Post.

THE SATURDAY EVENING POST



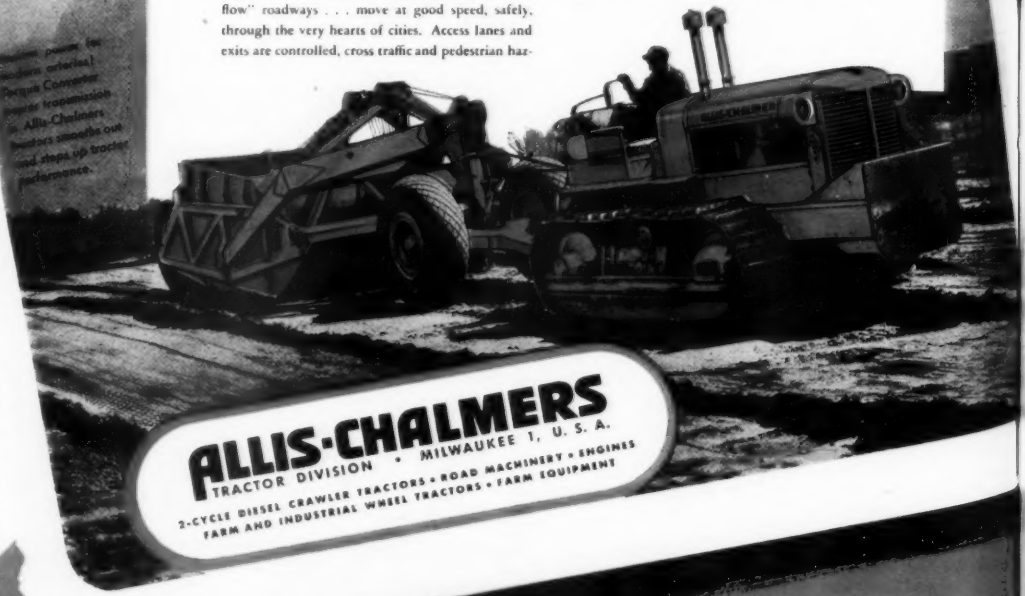
UNSNARLING THE TRAFFIC PROBLEM

By 1960, traffic is expected to be nearly double that of 1940. Already a major headache in metropolitan areas, where over half of all traffic is concentrated, there is need for immediate relief. Plans must be made and carried out now to *get ahead* and *keep ahead* of the steadily rising volume.

Answers have been found—like the Davison Expressway in Detroit, Henry Hudson Parkway, New York, and the Arroyo Seco Parkway, Los Angeles. Vehicles travel without interruption over "free-flow" roadways . . . move at good speed, safely, through the very hearts of cities. Access lanes and exits are controlled, cross traffic and pedestrian hazards eliminated, congestion on other streets relieved.

Funds now available to cities through federal and state aid are expected to provide real impetus for construction of modern arteries. Taking this financial help into consideration, and the glowing reports from studies made of existing expressways, a Midwest city official wisely remarked, "We might as well turn on the green light now."

CONSTRUCTION MAKES AMERICA STRONG

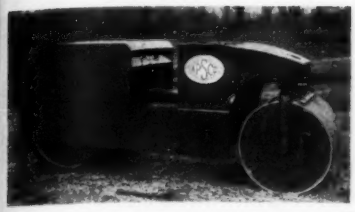


Power for modern arteries! Torque Converter power transmission by Allis-Chalmers matches smooths out and steps up tractor performance.

ALLIS-CHALMERS
TRACTOR DIVISION • MILWAUKEE 1, U. S. A.
2-CYCLE DIESEL CRAWLER TRACTORS • ROAD MACHINERY • ENGINES
FARM AND INDUSTRIAL WHEEL TRACTORS • FARM EQUIPMENT

TO AID YOU in getting your taxpayers' support on your plans, Allis-Chalmers will gladly send 10½ x 13½ inch reprints of the POST advertisement, "Unsnarling The Traffic Problem", attractively reproduced in four colors. Please let us know the quantity desired.

Ease of Operation Characterizes Roller



When a roller operates, it is not supposed to be as "light as air," but the Apsco 3- to 4-ton tandem roller feels like it to the operator when he steers it. The "air steering" feature gives flexibility of control. Air clutches for forward and reverse directions eliminate those damaging stops on hot bituminous material. The design of the roller gives the operator clearance and visibility on both sides for both the front and the rear roller. The low center of gravity is also an important safety feature which prevents serious accidents when the roller passes over dangerous soft spots in the subgrade or shoulder.

The roller is manufactured by the All Purpose Spreader Co., Elyria, Ohio. A free 4-page folder describes the roller in detail.

Two DDT Products Added To Knox-Out Line

The Pennsylvania Salt Mfg. Co., 1000 Widener Bldg., Philadelphia 7, Pa., has transferred its Pennsalt DDT Emulsion Concentrate and the Pensalco livestock and barn spray to the Knox-Out line. The two products will henceforth be known as Knox-Out products.

Knox-Out emulsion concentrate is a surface residual spray containing 34% DDT, especially designed for providing lasting insect control over large surfaces. Knox-Out stock and barn spray is a micron-sized wettable dust containing 50% DDT. Mixed with water, it can be applied as a spray to livestock, barn walls, and other surfaces for the control of flies and other insects. Application on livestock gives control for from one to two weeks. On walls and surfaces, control will last from two to three months. Either a brush or sprayer may be used.

As with the rest of the Knox-Out products, the two acquisitions will be handled through Pennsalt's Household Products Division and B-K Sales Division.

All-Time High for Twin Coach

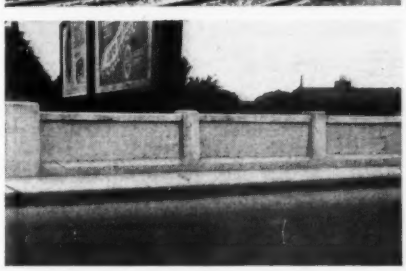
In April, the Twin Coach Co., Kent, Ohio, reached the highest delivery number in the twenty years of its existence—184 coaches.

April output was an increase of 27% over March.

CEMENT GUN COMPANY

"GUNITE" CONTRACTORS

GENERAL OFFICES—ALLENTOWN, PENNA., U.S.A.



VIADUCT SAVED WITH "GUNITE"

The two views are of the nine-span Fifth Street Viaduct at Lynchburg, Va. This is one of four viaducts we repaired with "GUNITE" for that city last year.

This thirty-five-year-old viaduct had become dangerously weakened by disintegration of the concrete girders, floor beams and deck slab. The entire area of the underside of the deck, beams and girders was chipped, sandblasted and restored to original strength with reinforced "GUNITE." The bridge railing was likewise completely rehabilitated.

"GUNITE" restoration of old structures of this kind will result in a great many years of additional safe service.

Our bulletin D2300 describes many similar jobs and scores of other uses of "GUNITE." Write for your free copy.

MANUFACTURERS OF THE "CEMENT GUN"

★ ★

Fresh, high quality broom fibres last longer

AFRICAN BASS FIBRES

INDIA PALMYRAH STALKS

The longer mileage you obtain from fresh broom fibres means less time-taking refilling of the broom core and valuable man-hours put to an extra use. The use of fresh, high-quality fibres in your mechanical sweeper is sound economy these days.

We are able to service every need in all types and sizes. We would be happy to receive your request for samples and quotations.

MOUNTAIN HICKORY SPLINTS

STEEL WIRE SWEEPER STALKS

The OTTO GERDAU CO.

Established 1872

82 Wall Street, New York 5, N. Y.

SOME PLACES THEY SAY—

"Only a Run"*

... BUT EVERYWHERE THEY SAY—

"Modernize with Macks!"

*Send us unusual expressions used in *your* department.

"It's only a run" is an expression used by many fire departments. It means responding to an unnecessary alarm or an out-on-arrival fire. And such runs make up a large percentage of every department's responses . . . account for much of the wear and strain made on fire apparatus. That's why more and more fire officials are concerning themselves with the road performance and durability of the apparatus they buy, as well as its firefighting serviceability.

Mack fire engines are known for their ability to stand up under the most punishing running conditions. Start-and-stop maneuvering in heavy traffic, leveling grinding gradients, roaring with open throttle over open highways — every kind of operation finds a Mack designed to do the job and more! Macks deliver this performance because they are the product of the greatest facilities in the fire engine field. This reputation is a good indication why fire officials in over 1,000 departments say "Modernize with Macks!"

Tacoma, Washington's, new Mack Type 95 1000-gallon pumper.

Mack FIRE APPARATUS

MACK MANUFACTURING CORPORATION Fire Engine Division, Long Island City 1, N. Y.

8001

TRIPLE COMBINATION PUMPERS — 500 TO 1250 GALLONS • SQUAD WAGONS • CITY SERVICE AND QUADRUPLE COMBINATION LADDER TRUCKS

Rockwell Holds Division Managers Meeting

Left to right, front row: C. A. Wiken, vice-president, engineering; W. S. Potter, vice-president, research; A. J. Kerr, vice-president, sales; W. F. Rockwell, chairman of the board; W. F. Rockwell, Jr., president; W. H. Newbaker, vice-president, purchasing; J. E. Ashman, controller. Second Row: B. C. Trueblood, Arcade Mfg. Div., Freeport, Ill.; A. H. Chatley, Delta Mfg. Div., Milwaukee, Wis.; H. S. Rockwell, Hopewell Div., Hopewell, N. J.; A. E. McIntyre, Pittsburgh Equitable Meter Div., Pittsburgh, Pa.; A. H. Ross, A. H. Ross Co., Ludlow, Ky.; N. J. Kenny, Ohmer Corp., Dayton, Ohio; H. F. Zorn, V & O Press Div., Hudson, N. Y.; R. C. Dubrucq, Crescent Machine Div., Leetonia, Ohio. Third row: A. R. Whittaker, National Meter Div., Brooklyn, N. Y.; F. V. Snodgrass, Nordstrom Valve Div., Oakland, Calif.; W. F. Crawford, Edward Valves, Inc., East Chicago, Ind.; H. C. Stuckeman, Delta Mfg. Div., Milwaukee, Wis.; L. A. Dixon, Pittsburgh DuBois Co., DuBois, Pa.; A. Kuhl, Monessen Foundry Div., Monessen, Pa.; C. S. Bygate, general purchasing agent; H. C. Greene, assistant to president. Top row: M. J. Carl, assistant secretary, assistant treasurer; J. R. Tench, manager, industrial relations; R. G. Caouette, manager, industrial engineering; J. E. Ralph, audit supervisor; W. A. Marsteller, manager, advertising and market research; P. A. Wick, legal supervisor; H. Boyce, office personnel; M. Corbin, assistant controller; I. C. Rowe, tax supervisor.

The annual meeting of the division managers of the Rockwell Mfg. Co., 400 N. Lexington Ave., Pittsburgh 8, Pa., which is closely tied in with the operational philosophy of the company, has recently been completed at Pittsburgh.

President W. F. Rockwell, Jr., explained that, "It is our belief that there are sound economic reasons, not only for diversification of products, but also for diversification of plant locations. We feel that a group of small plants, locally managed but with access to coordinated financing, engineering, accounting, purchasing, advertising, sales, and research has a distinct advantage in these changing times."

The three-day conferences were so successful that the plant managers have requested they be changed to a semi-annual basis.

Crowley Heads Tempo Sales In the East

Mr. Jack Crowley has been appointed eastern sales manager for the Milo Harding Co., Pico & Hope Sts., Los Angeles 15, Calif., according to an announcement by Milo Harding, president of the company.

Mr. Crowley has taken over the eastern division with headquarters at Pittsburgh, where he is working closely with Tempo distributors in the promotion of the Tempo line of duplicating supplies.

WHY—

The above illustration shows the position of the rubber lining in

Bi-Lateral Fire Hose

when it is held in a flattened position between calls into service. This is why we can save a city one replacement, because the hose will give double the service of any hose constructed under the old method.

—Also—

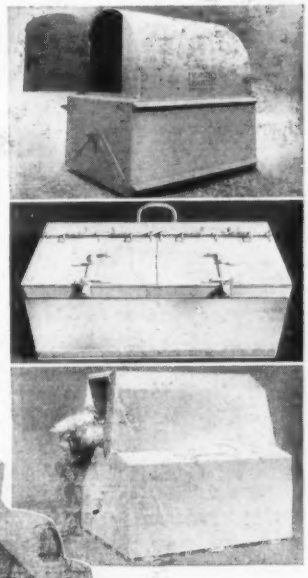
We can load 25% more on the apparatus-bed, actually making an $8,000 truck loaded with the Bi-Lateral construction cheaper than one priced at $7,000 when loaded with other construction.

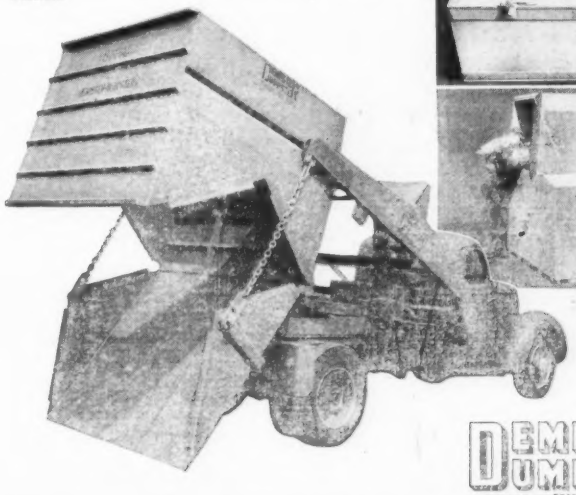
BI-LATERAL FIRE HOSE CO.

20 N. Wacker Drive, Chicago, Illinois

YOUR TOWN CAN HAVE EFFICIENT, SANITARY RUBBISH DISPOSAL

Join other progressive cities who enjoy clean, economical rubbish collection with the Dempster-Dumpster system. Detachable truck bodies—rubbish depositories—placed where needed, receive the rubbish . . . a truck hoisting unit picks them up when needed, hauls, dumps and returns them to place. Entire operation handled by truck driver. One truck hoisting unit with several bodies does the work of 4 or 5 ordinary trucks. A type of body available for every requirement. Write today for complete information.

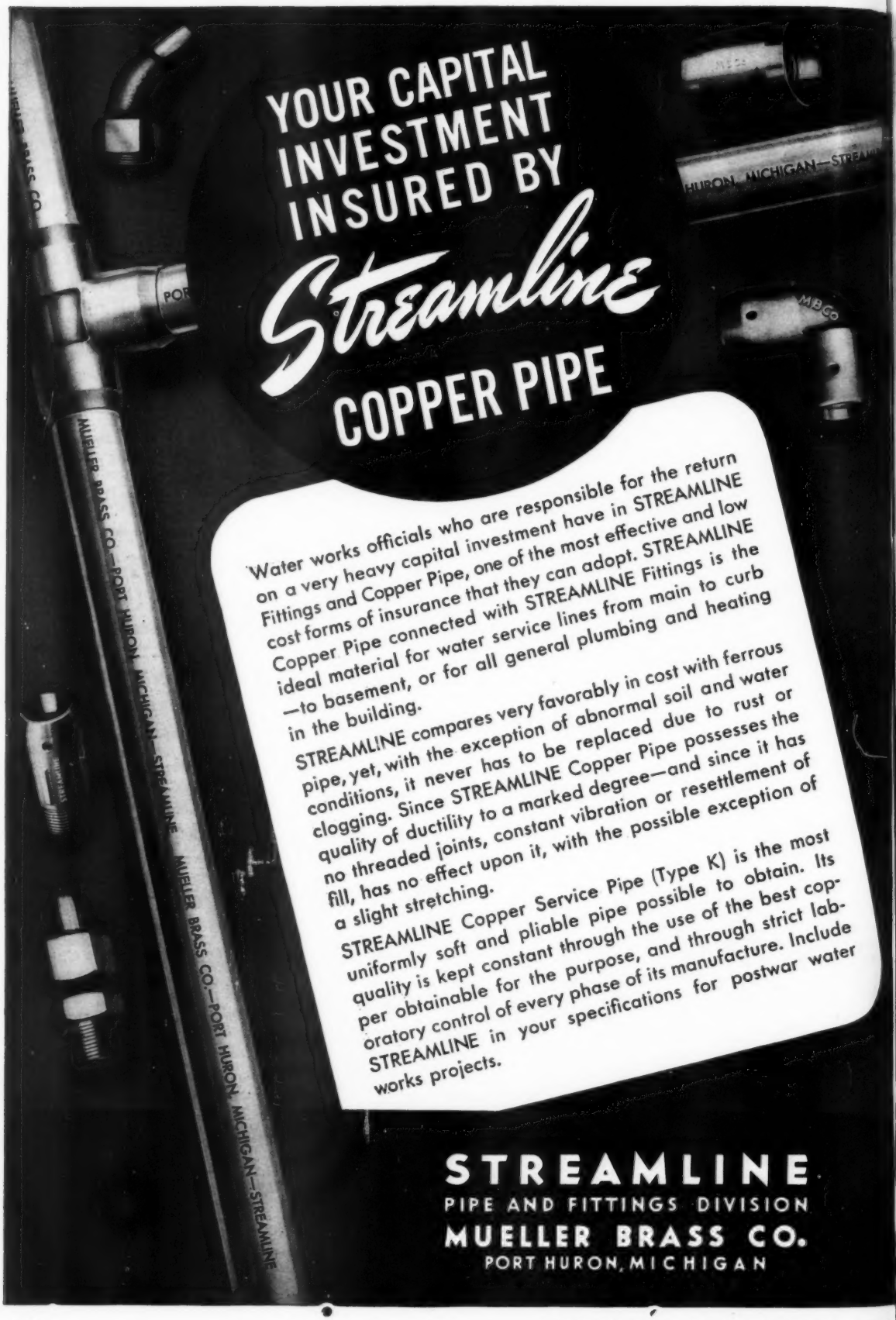




DEMPSTER DUMPSTER
TRADE MARK REG.

DEMPSTER BROTHERS, INC.

357 SPRINGDALE AVE.
KNOXVILLE 17, TENN., U. S. A.


YOUR CAPITAL INVESTMENT INSURED BY
Streamline
COPPER PIPE
Water works officials who are responsible for the return on a very heavy capital investment have in STREAMLINE Fittings and Copper Pipe, one of the most effective and low cost forms of insurance that they can adopt. STREAMLINE Copper Pipe connected with STREAMLINE Fittings is the ideal material for water service lines from main to curb —to basement, or for all general plumbing and heating in the building.
STREAMLINE compares very favorably in cost with ferrous pipe, yet, with the exception of abnormal soil and water conditions, it never has to be replaced due to rust or clogging. Since STREAMLINE Copper Pipe possesses the quality of ductility to a marked degree—and since it has no threaded joints, constant vibration or resettlement of fill, has no effect upon it, with the possible exception of a slight stretching.
STREAMLINE Copper Service Pipe (Type K) is the most uniformly soft and pliable pipe possible to obtain. Its quality is kept constant through the use of the best copper obtainable for the purpose, and through strict laboratory control of every phase of its manufacture. Include STREAMLINE in your specifications for postwar water works projects.
MUELLER BRASS CO.—PORT HURON, MICHIGAN—STREAMLINE
STREAMLINE
PIPE AND FITTINGS DIVISION
MUELLER BRASS CO.
PORT HURON, MICHIGAN

Bailey Meter Elects Vice Presidents

H. M. Hammond, former general sales manager, and P. S. Dickey, former chief engineer, have been elected vice presidents of the Bailey Meter Co., 1050 Ivanhoe Rd., Cleveland 10, Ohio.

H. M. Hammond

Mr. Hammond, a graduate of Rensselaer Polytechnic Institute, joined the Bailey Meter Co. in 1919 as a field engineer. Two years later he became Philadelphia branch manager and in 1923 was appointed sales manager. Mr. Hammond will continue to direct all sales activities of the company.

P. S. Dickey

Associated with Bailey since 1925, Mr. Dickey, a graduate of Purdue, became chief research engineer in 1934 and chief engineer in 1944. His activities will continue along the engineering line both in the domestic fields of the company and in advising its foreign affiliates.

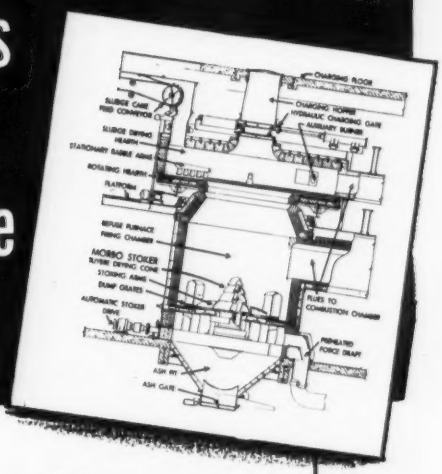
Nordberg Appoints Telfer

A. S. (Joe) Telfer has been appointed special representative of the Heavy Machinery Div., Nordberg Mfg. Co., Milwaukee, Wis. Mr. Telfer will specialize in diesel engines for oil pipeline service, covering the Texas and the Middle West section with headquarters at Houston.

A. S. Telfer

Joseph T. Adams has been appointed sales engineer of the Heavy Machinery Division, Nordberg Mfg. Co., 3073 South Chase Avenue, Milwaukee 7, Wis. Previously, Mr. Adams was affiliated with the Busch-Sulzer Bros.-Diesel Engine Co. until that organization was acquired by Nordberg.

Destructors for Combustible Wastes



Buy MORSE BOULGER

and you buy . . .

1 — GREATER SELECTIVITY
2 — MODERN DESTRUCTORS
3 — LONGER EXPERIENCE
4 — FULL GUARANTEE

THE progressive, sanitary-minded community will not tolerate open dumps or even ineffective, offensive waste disposal plants. It does want and will approve a unit of modern design and construction that will destroy garbage, trash, sewage sludges, institutional wastes and hospital organic matter without producing offensive smoke or odor.

We are interested in serving such communities because we have much to offer in the way of destructors. There's a Morse Boulger design capable of handling any combination of combustible wastes. Our units are *guaranteed* to give satisfactory results. Our field men stay with the job until it is operating 100% and instruct the crews so that they can carry on. Back of this service is 60 years' experience in the field of incineration.

Discussion of your problem and plans places you under no obligation. If there isn't a Morse Boulger representative near you, write us here in New York.

Morse Boulger Destructors include:

1. **Mechanically Stoked Incinerator, Bulletin 111**
2. **Cell and Hearth Type Incinerator, Bulletin 110**
3. **Rotary Hearth and Stoker Incinerator, Bulletin 111 (illustrated)**
4. **Multi-Zone Furnace, Bulletin 114**

MORSE BOULGER DESTRUCTOR COMPANY

205-R East 42nd Street **New York 17, N. Y.**

Representatives in Principal Cities

for
SURFACE
BINDING
of
UNPAVED
ROADS

SOLVAY
TRADE MARK REG. U. S. PAT. OFF.

CALCIUM
CHLORIDE

• Ends Dust
• Reduces Blading
• Saves Surfacing Materials
• Provides Smoother Riding

Solvay Sales Corporation, 40 Rector Street, New York 6, N. Y.

New Roads, But Old Methods

Despite accelerated repair and construction activities, ". . . only the expansion joint has made appreciable progress . . ." states T. R. Johnson, newly - appointed general manager of the Keystone Asphalt division of the American-Marietta Co., 43 East Ohio St., Chicago, Ill.

T. R. Johnson

Mr. Johnson's conclusion, made after a nationwide survey, shows that few engineering changes will be incorporated in 1947's highway standards. Releasing a printed summary of highway pavement specifications obtained in cooperation with state highway officials, he declared that 38 states have accepted the theory that expansion joints are essential, with spacing ranging from 60 to 600 feet with an average of about 200 feet.

Preformed mastic board and poured rubber asphalt construction joints at spacings of from 15 to 20 feet are specified in 90% of the states reporting definite standards. Asphalt and fibre are the preferred expansion joint materials, with cork, steel, wood, sponge-rubber, and cotton-seed hulls being used in a few regions.

Copies of Keystone's survey summary on highway specifications are available to city officials, engineers, and contractors upon request.

Devices for Fire Fighting

Sixty percent of all small fires are said to be put out by portable fire extinguishers which are worked by hand. However, it is essential that operators of fire equipment know the correct choice for each type of fire.

Foam controls and extinguishes fire by smothering the blaze, cutting off the air necessary to combustion with an air-tight and heat-resisting blanket made up of millions of minute bubbles containing carbon dioxide gas. This method is particularly effective on inflammable liquid fires, where liquid streams would be generally futile. Water streams, being heavier than the burning liquid, sink to the bottom and cause the liquid on fire to overflow. Foam, being lighter than flammable liquids, blankets the entire surface and smothers the fire.

Another type of extinguisher utilizes carbon dioxide gas and snow. Carbon dioxide, being a non-conductor, is safe for live electrical equipment. Harmless, inert, non-corrosive, non-poisonous, and odorless, clouds of carbon dioxide disappear without leaving any trace and will not damage even the most delicate fabric. It is recommended for fires that occur in paint and varnish mixing tanks and storerooms and alcohol bins.

For protection of automobile units, motor boats, buses, street and railway cars, and electrical plants, vaporizing liquid units of a pump type have been found particularly valuable.

What You Should Know About Modern Fire-Fighting Devices, available from American - LaFrance - Foamite Corp., Elmira, N. Y., graphically illustrates the most efficient equipment for fighting different types of fires. Both portable and stationary equipment is illustrated.

FIRES DIFFER * Choose correct type extinguisher for each particular risk

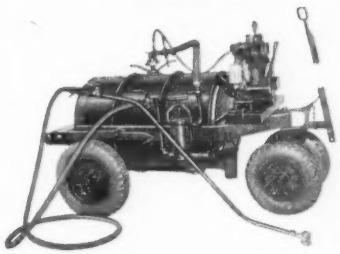
CLASS OF FIRE	Foam	Chemical Solution (Soda-acid)	Anti-freeze	Vaporizing Liquid	Carbon Dioxide
A (Wood, Textiles, Rubbish, etc.)	Yes	Yes	Yes	No	No
B (Oils, Greases, etc.)	Yes	No	No	Yes	Yes
C (Electrical Machinery)	No	No	No	Yes	Yes
D (Pleasure Automobiles, Commercial Trucks, etc.)	No*	No	No	Yes	Yes
TRADE NAME	Crusader Foamex	Childs Empire	Allweather Arctic	Fire-Gun	Ailite

*Except in warm climates

Complete detailed extinguisher chart available upon application

One of the informative charts contained in the American-La France-Foamite booklet on fire-fighting.

WEEDS



STREET REPAIRS

WEEDS will come to your parks and vacant lots; chuck holes to your roads and streets.

Overcome both with the TARCO "direct from the shipping drum" SPRAYER. It's a FAST, CLEAN MONEY-SAVER with many uses.

Write for free pamphlet.

Street Cleaners' Cans and Carriers
Tar and Asphalt Pouring Pots and Buckets

Tarrant Manufacturing Co.
East Avenue,
Saratoga Spa, New York

Locate Underground Leaks
without any digging . . .
with a
GEOPHONE
(Reg. U. S. Pat. Off.)
The original leak locator of the Geophone type

Placed in contact with earth, the GEOPHONE accurately detects, by sound, the position of leaks in underground water or steam pipes.

Leaks are too costly to be ignored. A pin-point size leak wastes 65,000 gallons of water annually!

A GEOPHONE saves the cost of locating leaks—saves the costs of surveys, excavating, replacing. A big paying investment for water, sewerage and Public Works Departments; for any plant with underground water or steam pipes.

Outfit complete with two GEOPHONES, connecting tubes, earphones, in heavy leather carrying case with shoulder straps. ..$75

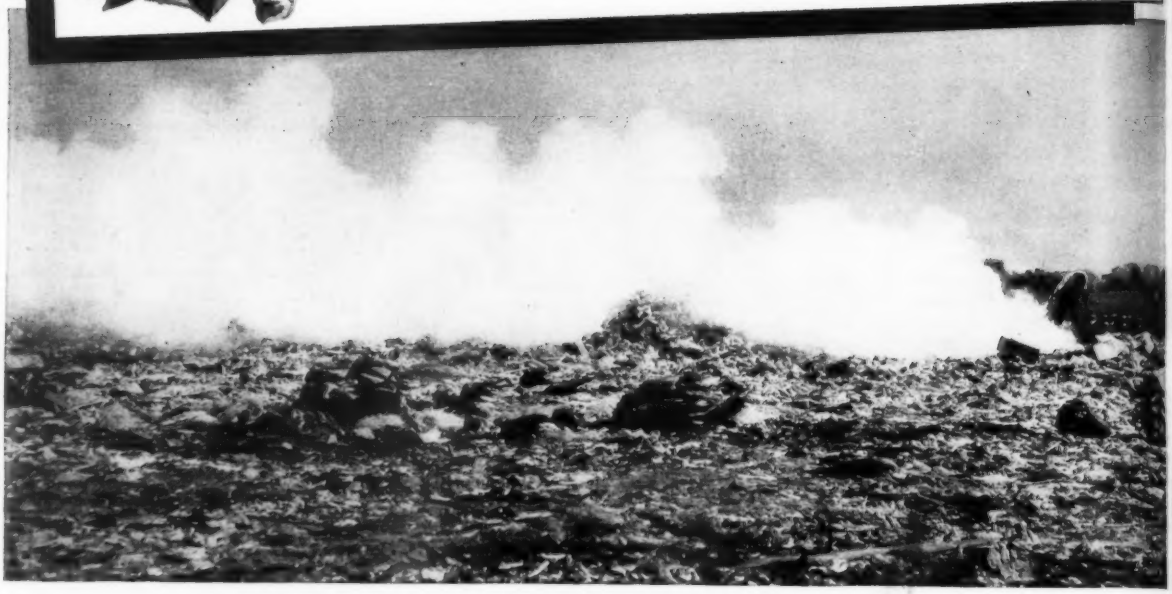
Pipe Finders, $100.00; Dipping Needles, $18.50; Pipe Phones, $3.70.

Write at once to

Globe Phone Mfg. Corp.
Dept. A, Reading, Mass.

Manufacturers of the Geophone Since 1918

"Yes, sir . . . THAT TIFA FOG GETS THOSE PESTS!"



. . . DEATH-DEALING FOG FOR INSECTS

TIFA **is the *Quick . . . Sure . . . Economical* method of insect pest control.**

TIFA discharges newly developed as well as the older insecticides, fungicides, repellents or hormones in a *true fog* that *spreads quickly* over a wide area . . . *clings* to all objects in its path . . . *permeates* the smallest crevices.

TIFA . . . a compact, easily handled one-man unit, powered by a standard-make gasoline engine . . . can be used wherever insect pest control is essential to public health and welfare . . . on garbage or fill dumps, on beaches, in parks, resorts, and swamps. And it's BUILT TO LAST.

TIFA

TODD INSECTICIDAL FOG APPLICATOR

Write for illustrated folder on sensational TIFA—full details on how it operates, what it does, and official comments on its astonishing effectiveness.

A Product of

COMBUSTION EQUIPMENT DIVISION

TODD SHIPYARDS CORPORATION

81-16 45th Avenue, Elmhurst, Queens, N. Y.

Ventilated Aluminum Umbrella

The Koolvent umbrella keeps the sun out, and the temperature down.

Sturdy aluminum construction, combined with the unique ventilating feature of an 8-foot-diameter overhang consisting of a series of alternating and separated layers of aircraft aluminum strips with edges formed at right angles, make the Koolvent aluminum umbrella ideal for municipal pools, beaches, and parks.

Manufactured by the Kool-Vent Aluminum Umbrella Corp., Keystone Bldg., 324 Fourth Ave., Pittsburgh 22, Pa., the umbrella keeps the sun out while permitting circulation of breezes that prevent heat pockets. Each alternating strip overlaps the strips adjacent to it so that summer temperatures are from 10° to 20° cooler under this ventilated umbrella than under other types.

Although designed for quick dismantling and compact storage, the umbrella is rugged enough to be left up in bad weather. Further information may be obtained by writing to the company.

deCamp Becomes President

J. A. deCamp has been elected president of the National Water Main Cleaning Co., 50 Church St., New York 7, N. Y., to fill the vacancy caused by the death of Mr. Clinton Inglee.

J. A. deCamp

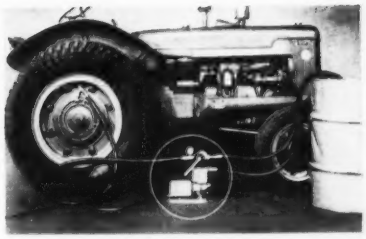
Mr. deCamp has been connected with the company since 1914, both as director and officer. In 1941, he was elected secretary-treasurer, and later vice-president.

Other personnel changes made during the recent special meeting of the company held to elect the president were the appointments of J. A. Frank to the position of executive vice-president, and of James R. Brown to vice-president in charge of sales promotion.

Lightweight Pump For Liquid-Filling Tires

A new lightweight pump for liquid-filling the tires of tractors and construction equipment is now available from the Gorman-Rupp Co., Mansfield, Ohio.

The mechanism increases drawbar pull up to 60% and will withdraw liquid or air from a tire and then fill it with water or calcium chloride solution, as recommended by the tire manufacturer. Over-inflation is prevented by 60-PSI capacity. The pumps are available in either electric motor or gasoline engine-driven models. The pumps may be obtained with tank for use as an air compressor.



The Gorman-Rupp pump for liquid-filling tires.

Endurance and POWER
...plus easy handling and light-weight!
R.P.M. IS THE FIRST
power mower with a rugged
engine developed expressly for
mower service — and almost en-
tirely of weight-saving aluminu
OPERATES
HOUR AFTER HOUR
DEPENDABLY
Here is a power mower with REAL STAMINA for hard service day in and day out; endurance such as you've never before seen in a 21-inch-cut mower. Every engine tested under full load before and after installation in the mower; fully guaranteed.
You'll get a new thrill in using it, too! Unbelievably light; weighs only 56 pounds! You can "turn on a dime," stop, cut forward or backward—all without manipulating any controls. Gets clear up to walks and walls, in under shrubbery. Breezes right through tallest, toughest, thickest grass or weeds.
Easy-starting 2½ h.p. 2 cycle gasoline engine; drives a tempered rotary blade with safety release. Patented housing draws grass erect and ejects mulchified cuttings off to one side away from operator's feet.
4 MODELS TO SUIT YOUR CITY'S VARIOUS NEEDS
In addition to the rugged Rotoflo Heavy-Duty model described above, there are two Standard models, one of 20-inch cutting width, weighing 47 lbs., and the other of 18-inch cutting width weighing 45 lbs., both using a one-horsepower 2-cycle engine. The Rotoflo Junior cuts a 16-inch swath, weighs 45 lbs., and has a twin-cylinder 2-cycle engine of ⅝ horsepower. Each Rotoflo is built to give maximum value and service for its size.
Avoid servicing grief and wasted time! Get easier, faster grass cutting and neater, healthier turf. Write for full information today!
ROTOFLO POWER MOWERS
563 Oak Street, Kansas City 6, Missouri

KARPARK

STANDS FOR DEPENDABILITY

Year in and year out, for decade after decade, famous Big Ben has told the time to the citizens of London and has become world known as a symbol of dependability. For months, for years on end, faithful KARPARKS tell of parking time to motoring citizens in hundreds of cities. Rugged construction makes light of heat, cold, rain and snow and allows the precision-made mechanisms to maintain unquestioned accuracy. Add this reliability to the ease, simplicity and certainty of KARPARKS' Automatic Operation and the result is a parking meter service that wins the vote of the public, of traffic officers, of maintenance men, of city officials. To be fully informed write for all the facts.

KARPARKS ARE MANUFACTURED BY THE HERSCHEDE HALL CLOCK CO.

THE WISE CHOICE

KARPARK *Automatics*

KARPARK CORPORATION, CINCINNATI 6, OHIO

SAVE MONEY—

As More Than 3,500 Cities and Towns have done with Automatic Voting Machines

Election expenses are reduced because

it has been proven that:

1—Voting precincts may be consolidated

2—Fewer officials are required, working shorter hours

3—No paper ballots need be printed

4—Expensive recounts are eliminated

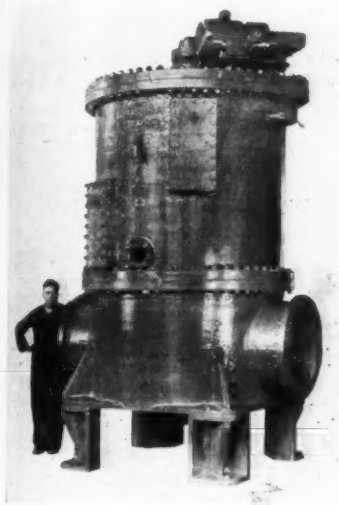
Let us estimate the savings that can be made in your community

AUTOMATIC VOTING MACHINE CORPORATION

Jamestown 55, New York

"Builders of Voting Machines Since 1898"

Self-Cleaning Water Strainer Relieves Silt Loading



Here is a type of "roughing filter" that is finding use in the treatment of certain types of water supplies, particularly when the load from suspended matter is very heavy.

Known as the Brassert Self-Cleaning Strainer, and manufactured by S. P. Kinney Engineers, Inc., 233 Oliver Ave., Pittsburgh, Pa., it consists of a large housing that holds a slowly revolving conical drum. This drum contains a series of small filtering discs that filter the water as it passes through the drum. The housing contains a set of backwashing ports that each of these discs pass as they revolve. The pressure of the water being filtered reverses the flow through these ports and backwashes the filter discs.

The strainers are built in sizes varying from 3 to 30 inches. It requires a motor ranging in size from 1/2 to 5 hp and backwash water ranging from two to five per cent.

AWWA Elects Officers

At its annual meeting held in Chicago, the nominating committee of the American Water Works Association elected N. T. Veatch president, Linn H. Enslow vice-president, and William W. Brush treasurer. The officers-elect will take office on July 1, 1947, and will serve until the close of the 1948 conference or until July 1, 1948, whichever date is earlier.

Mr. Veatch is a partner in the firm of Black & Veatch, consulting engineers, Kansas City, Mo. Mr. Veatch's experience includes teaching at the University of Kansas, service with the State Board of Health in that state, and wide experience in various consulting projects.

At present the editor of *Water & Sewage Works*, Mr. Enslow is a graduate of Virginia Polytechnic Institute and John Hopkins University. He has been associated with The Chlorine Institute and has served with several state health departments in the investigation of water purification.

Mr. Brush, who is editor of *Water Works Engineering*, has been with the Brooklyn Water Department and the New York Board of Water Supply. He was graduated from New York University.

New Lawn Mower Has Improved Features

The Coldwell Lawn Mower Div., Portable Products Corp., Newburgh, N. Y., has developed a new model lawn mower, featuring light weight and ease of operation that is ideal for the upkeep of smaller municipal lawns and park areas.

The cutting reel of the New Imperial mower has five blades for even cutting, and is easily adjustable to cutting heights from 1/3 of an inch to 1⅞ inches, and is mounted on ball bearings. This, added to semi-pneumatic tires on the disc wheels, provides a machine that is operated with a minimum of effort.

Because of the light metals used in its construction, the new mower weighs only 30 pounds, yet its steel construction at all points of stress gives the machine strength and wearability.

Additional information may be obtained from the manufacturer.

IT'S EASY *if* YOU KNOW-HOW

Now is the time to put your mains in condition for handling peak summer loads.

We have the men, the experience and the equipment necessary to handle any pipe cleaning job quickly, effectively and economically.

Why not ask us for an estimate?

National Know-How Pays

NATIONAL WATER MAIN CLEANING COMPANY

50 CHURCH STREET, NEW YORK 7, N. Y.

ATLANTA.....1221 Mortgage Guarantee Building
BOSTON.....115 Peterboro Street
CHICAGO.....205 West Wacker Drive
HOUSTON.....2518 Grant Street
KANSAS CITY.....421 B.M.A. Building
LOS ANGELES.....448 South Hill Street
MEMPHIS.....822 Dermon Building
OMAHA.....3812 Castellar Street
RICHMOND.....210 East Franklin Street
ST. LOUIS.....7103 Dale Avenue
SALT LAKE CITY....149-151 W. Second South Street
SAN FRANCISCO.....681 Market Street
MONTREAL.....2028 Union Avenue
WACO.....P. O. Box 887
WINNIPEG.....576 Wall Street
HAVANA · MAYAGUEZ, PUERTO RICO · BOGOTA · CARACAS · MEXICO CITY

HARLEY-DAVIDSONS Exclusively since 1931 — that's the record of Tacoma's Motorcycle Police

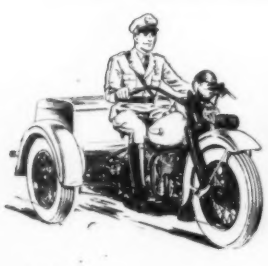
The Police Department of Tacoma, Washington now has 13 O.H.V. solo Harley-Davidsons and 10 Servi-Cars, a total of 23 in all. The photo shows 21 of them. The entire fleet is used the year around, with sidecars attached to the O.H.V. models during the winter months. Sgt. Bob Marshall is at the extreme right, Sgt. Tom Sommers, second right.

Proof of the Value of Harley-Davidsons in Solving Increased Traffic Problems

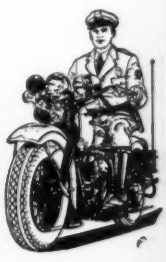
TRAFFIC fatalities in Tacoma showed a *decrease of more than 50 per cent in 1946* as compared to 1945. Congratulations to Tacoma's Motorcycle Police — and to sergeants Marshall and Sommers! It is noteworthy that Harley-Davidson Police Motorcycles, Servi-Cars, and sidecars had an important role in Tacoma's accident prevention program which shows the effective results of hard work, intelligent thinking, and careful planning.

Many police departments throughout the country are doing fine accident prevention work with their present equipment — but all too often are hampered by not having *enough* motorcycles! To best utilize *your* manpower — and get maximum results from modern traffic control techniques— use *more* Harley-Davidson Police Motorcycles, Servi-Cars and sidecars. Many cities and towns *have proved* that no other method can match this motorcycle combination for solving traffic problems and *preventing* tragic accidents, injuries, and deaths. Call in your Harley-Davidson dealer today . . . get complete information regarding Harley-Davidson Police Motorcycles, Servi-Cars and sidecars.

HARLEY-DAVIDSON MOTOR COMPANY • Milwaukee 1, Wisconsin



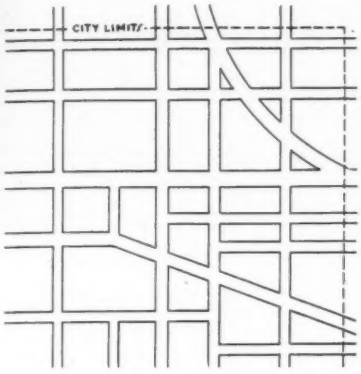
HARLEY-DAVIDSON
POLICE MOTORCYCLES



Good House Numbering Systems

In general, well-planned cities follow two main systems when numbering their houses. In cities where streets are laid out in regular block formation, officials frequently establish base lines running north-south and east-west. These are the starting points for house numbering and an even hundred sequence is allowed for each block, regardless of the number of houses on the block.

Assuming that Main Street is selected as the base line, north and south would carry numbers starting



This line chart illustrates the method of using city limits as the base line for the consecutive numbering system.

with "100." Then, assuming State Street is selected as the base line east and west, the first blocks north and south of State Street would start with "100." Usually streets carry the directional prefix to designate where they are in relation to the base line, as indicated in the chart below.

With this system, it is easy to locate any house in relation to the base line. The numbers of all parallel streets are always in the same location and equally distant from the base line street.

Main and State Streets, as base lines for the hundred to each block system.

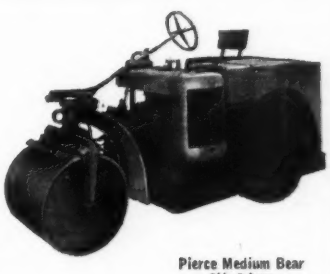
Another method used in cities with irregular streets and numerous short intersecting streets is to use consecutive numbers to designate houses, numbers being assigned on the basis of street frontage.

Premax Products, Division of Chisholm-Ryder Co., Inc., Niagara Falls, N. Y., has prepared a booklet, Catalog No. L-46, that covers this subject more thoroughly. It also lists the house numbering figures that the company produces and tells of their various uses. In addition it gives data on other types of markings used in connection with electric utility and radio services.

A Roller For Every Job

Sturdy, heavy-duty rollers, engineered to stand up under the toughest conditions. Pierce-Bear Tandem Rollers are powered by economical Allis-Chalmers 4-cylinder industrial type gasoline engines. Variable weights, from 3½ to 5 tons with built-in water tanks for ballast and wet rolling.

Pierce Baby Bear
2½-3 tons

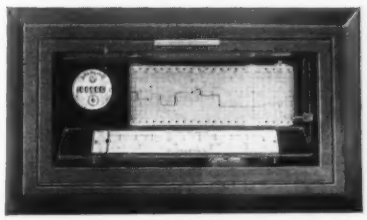


Pierce Medium Bear
3½-5 tons

The new 2½-3-ton Pierce Baby Bear is designed for close-in work and small area maintenance. It works against a curb up to 25 inches high and within 1½ inches of a higher wall or building. Final drive is within the rear roll. Use Pierce-Bear Tandem Rollers for all-around performance. Write for folder.

Pierce-Bear Rollers
Lewis Manufactuing Co.
415 Hoefgen Ave.—San Antonio 6, Tex.

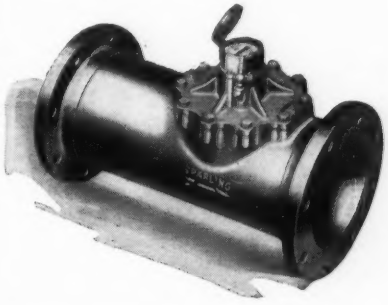
Sparling Meters for Your Main-Lines



EACH Sparling Main-Line Meter is a complete Totalizing unit, easily installed at a moderate cost. Twenty-seven years' continuous production assures consistent accuracy, service and satisfaction. Flow-rate indicators, recorders and controls are added if, as, and when needed.

•

Quotations gladly given. Bulletin 309 comes upon request.

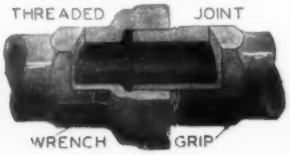


The SPARLING
Manufacturers of WATER MEASURING EQUIPMENT

Los Angeles 54_Box 3277 Terminal Annex
Chicago 16____3104 South Michigan Ave.
Cincinnati 2_____622 Broadway
New York 17_____101 Park Avenue
Boston_____6 Beacon Street

EASY To MAKE TIGHT Joints WITH McWANE

OVERSIZE MALE & FEMALE THREADED JOINT

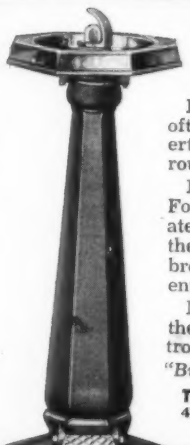


2" THREADED JOINT
Cast Iron Pipe

The cross-section view shows the simplicity, the rugged strength, and the sound engineering design of this modern THREADED JOINT. It is a joint any man can make with only a wrench, for all he does is "screw 'em together!"

McWANE CAST IRON PIPE CO. *Birmingham, Ala.*

McWANE 2" CAST IRON PIPE



PEDAL-OPERATED FOUNTAINS BEST

People are playful, careless, often destructive. Public property, therefore, must withstand rough usage.

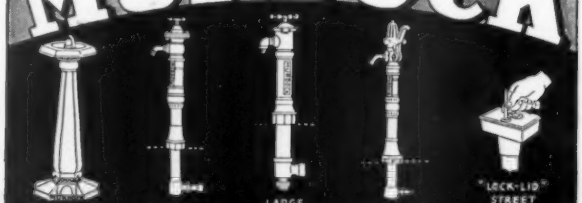
Murdock Outdoor Drinking Fountains are pedal (foot) operated. The spring which operates the valve is made of phosphor bronze. Inner works are made entirely of brass.

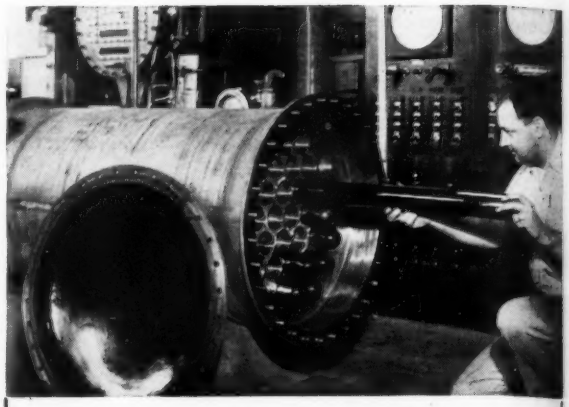
Metals, machining—everything the best—for long life and trouble-free service.

"Buy for Service—Buy Murdock."

The Murdock Mfg. & Sup. Co.
426 Plum St. Cincinnati 2, Ohio

MURDOCK


OUTDOOR DRINKING FOUNTAIN
ANTI-FREEZING COMPRESSION HYDRANT
LARGE ANTI-FREEZING HYDRANTS 1½" TO 2" INCLUSIVE
SELF-CLOSING ANTI-FREEZING HYDRANT
"LOCK-LID" STREET WASHERS ¾" and 1" SIZES



Inserting dielectric tubes into a WELSBACH ozonator preparatory to making a test run at the factory.

Efficiency of *Ozone* in removing phenols from drinking water...

Ozone is a most powerful oxidant.

The principal value of ozone in water treatment is its ability to eliminate unpleasant color, tastes, and odors. Ozone is very effective with phenolic pollutions. It introduces no foreign elements into the water.

The WELSBACH ozonator is made of stainless steel incorporating the latest developments in heat-resistant glass and modern electrical equipment.

WELSBACH ozone generators, ranging in capacity from one to 50 pounds per day, can be combined in a simple, compact housing with unit panel control to meet any demand.

WELSBACH

OZONE PROCESSES DIVISION
THE WELSBACH CORPORATION
1500 WALNUT ST. PHILADELPHIA 2

Berghoff to Direct Advertising For Pittsburgh Plate Glass

Guy Berghoff, director of public relations for Pittsburgh Plate Glass Co., 632 Duquesne Way, Pittsburgh, Pa., will be in charge of all advertising activities, which will continue to be handled separately by advertising departments for each of the four divisions of the company.

Guy Berghoff

Mr. Berghoff joined the firm in 1934 as assistant manager of glass advertising and promotion. He served in that position until 1944, when he was appointed director of public relations.

82-Pound Paving Breaker

A new 82-pound paving breaker suitable for heavy-duty demolition work and general paving breaking jobs has been announced by Ingersoll-Rand Co., Phillipsburgh, N. J.

The new kicker-port valve provides an efficient and high striking power. A metered device that furnishes proper lubrication to all working parts insures oil economy, and an oil reservoir in the handle prevents breakdowns that might otherwise occur. Easy and smooth starting is provided by the improved throttle-valve, permitting gradual entrance of air.

The PB-8 paving breaker may be converted into a pile driver or spike driver by simply changing front-heads.

Additional information may be obtained by writing to Ingersoll-Rand, 11 Broadway, New York 4, N. Y.; ask for bulletin No. 4051.

The PB-8 paving breaker has a comparatively long handle, reducing operator fatigue.

Macdonald Sales Manager for Electro Rust-Proofing

Frank P. Macdonald has been appointed sales manager of the Electro Rust-Proofing Corp., 1 Main St., Belleville 9, N. J.

Mr. MacDonald who will make his headquarters in the Wallace & Tiernan building at 1229 W. Washington Blvd., Chicago, Ill., has been with Electro for a number of years, specializing in in the cathodic protection field.

Todd Moves to Elmhurst Factory

The entire facilities of the combustion equipment division of Todd Shipyards Corp. have been moved from the Starrett-Lehigh Building at 601 W. 26th St., New York, N. Y., to 81-16 45th Ave., Elmhurst, Queens, N. Y. This change in address affects the machine shops, assembly shops, stores, service department, engineering department, drafting room, and offices.

Before You Buy ANY Domestic Water System See the PEERLESS Water King Advantages!

Exclusive Water King Features

SIMPLIFY WATER PUMPING—LOWER COSTS

The Most Advanced Pumping Principle in the Last 10 Years

"Magic Wings to Water Lift"

The trouble-free simplicity of the patented Peerless Water King is a real innovation in water pumping. Here is the ideal pump for domestic and light industrial water systems, meeting every requirement for simplified pumping at lower costs.

The Peerless Water King is the pump with "Magic Wings to Water Lift." The Water King is a shallow well pump, embodying an exclusive "magic" pumping element: a hard chrome rotor revolving in a rubber stator that draws water upward and forces it into pressure tank—the most advanced pumping principle in the past 10 years. Capacities: 275 to 860 g.p.h., against pressures up to 40 lbs. *There are no parts of the pump underground.* 100% automatic. Easily installed over the well or offset. Pumping element highly resistant to abrasive and corrosive action. Finely engineered—Compact—Quiet—Trouble-free.

PLAN WITH PEERLESS

Peerless has a pump for all your needs for water—from 10 to 220,000 gallons per minute! Write to Peerless factory or district office for literature and name of nearest dealer. *Descriptive Bulletins available.*

PEERLESS PUMPS

THE PEERLESS WATER KING

Covered by Peerless Patent 2,346,428 Mfd. under R. Moineau's U. S. Letters Patents 1,892,217-2,028,407—Reissue 21,374 and Canadian Patent 352,574; Robbins & Myers, Inc., Sole U. S. and Canadian Licensee.

2 PEERLESS DOMESTIC WATER SYSTEMS

A PEERLESS JET SYSTEM, TOO

For Deep or Shallow Wells. Capacities: 120 to 7500 g.p.h. Lifts up to 120 feet.

This amazingly simple and compact Peerless Jet Water System produces all the water you want for normal light industrial operating requirements. It is a pressure system, entirely automatic, and occupies little more space than an electric motor. A Peerless Jet Water System offers a lifetime of trouble-free water service at minimum cost. Can be installed over well or offset.

Write for Bulletin B-155-1 describing Jet Water System in detail.

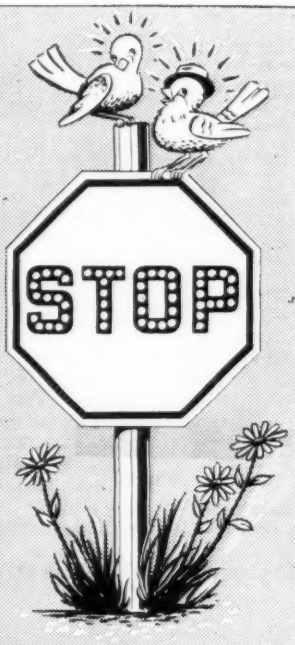
PEERLESS PUMP DIVISION

FOOD MACHINERY CORPORATION

Factories: Canton 6, Ohio Quincy, Illinois Los Angeles 31, California

District Offices: Canton 2, Ohio; Ardmore, Pa.; Decatur, Ga.; Dallas 1, Texas

Signs of Spring



It's a wise bird that chooses the complete Miro-Flex line. Plenty of safety in these smart signs. Plain embossed or reflectorized, with glass or lucite buttons. Galvanized on bonderized steel. Baked enamel finish.

It's a wise government that protects its people with traffic control signs. For detail on America's finest sign line, write for your catalog TODAY.

547

MANUFACTURED BY

MIRO-FLEX COMPANY

1824 EAST SECOND STREET · WICHITA, KANSAS

Make Your Repair Dollar Cover More Roadway with LITTLEFORD TRAIL-O-ROLLER

This Littleford No. 155 Trail-O-Roller covers ground like a kid in a baby walker! It makes your dollar do a bigger job because whatever it Rolls is there to stay. Gets to more jobs because it trails safely at any speed. Patented Hydraulic lift converts it easily from rolling to trailing position. Powered by air-cooled engine; has automotive type steering control, heavy duty transmission, machine finished cast main roller. Use Trail-O-Roller for all patch work, shoulder widening, alley paving, airport runways, driveways, parking areas, school yards...*everything!* Write for Bulletin No. 3 today.

LB — BLACK TOP ROAD MAINTENANCE EQUIPMENT — SINCE · 1900

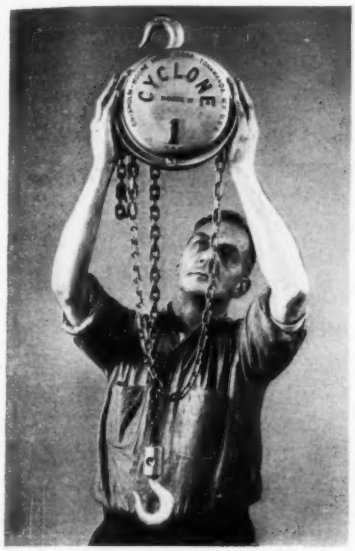
LITTLEFORD

LITTLEFORD BROS., Inc.

500 E. PEARL ST., CINCINNATI 2, OHIO

New Chain Hoist

Through the use of steel and aluminum alloys, the weight of a new hand-operated hoist that is 96% mechanically efficient has been reduced to a point where it is nearly 45% lighter than standard hoists of comparable capacity.



Pictured above is a 1-ton hoist; easy to handle and operate.

Produced by the Chisholm-Moore Hoist Corp., Tonawanda, N. Y., the hoist features ball bearings on all rotating parts.

The hoist, known as the Cyclone Model M, is available in capacities of ¼ ton, ½ ton, 1 ton, and 2 tons. All models are equipped with "Herc-Alloy" steel chain, produced by the Columbus McKinnon Chair Corp.

New Peerless Pump

A new contribution to the regulation and control of huge volumes of water has been recently made by the Peerless Pump Division of the Food Machinery Corp., with the development of a mixed-flow-type pump which can be applied to de-watering, flood control, agricultural, and industrial service.

This pump, particularly valuable for situations requiring the moving or removing of water in capacities up to 220,000 gpm, complements the Peerless Hydro-Foil pump line, which includes a propeller-type pump. The addition of the mixed-flow design offers the advantage of flexibility where huge volumes of water are to be handled under varying conditions. Embodying characteristics of both centrifugal and axial flow pumps, the mixed flow moves liquids against maximum heads with minimum submergence, is adaptable to shallower sumps, utilizes higher-speed motors against medium heads, and can be installed in a comparatively small amount of space.

The pump is described in a new 24-page bulletin, No. B-148, (Peerless Hydro-Foil Pumps, Propeller and Mixed Flow Types), which illustrates typical and unusual installations, uses and engineering advantages, and installations in municipal irrigation and canal water diversion work, as well as ship, dry-dock, underpass, coffer dam, industrial process applications, and agricultural work. The booklet is illustrated with cross-sectional drawings, engineering data, and diagrammatic sketches of pump station arrangements. Copies may be obtained by writing to the company at 301 W. Ave. 26, Los Angeles 31, Calif. The booklet will be sent to you without obligation.

Kills Weeds Only

A new form of weed killer, which comes in tablets to be dissolved in two quarts of water per tablet, is being manufactured by E. I. du Pont de Nemours & Co., Wilmington 98, Del.

Karmex kills all types of turf weeds and woody-stemmed perennials, including poison oak, poison ivy, and sumac, without harming the grass. However, the manufacturers do not recommend Karmex on bent grass.

The solution may be applied with any small hand sprayer or sprinkling can.

Descriptive literature on this method of weed control and du Pont's Ammate weed killer may be obtained by writing to the company.

YOUR NEIGHBOR IS OUR ★ STAR SALESMAN!

Illustration shows use of "Flexible" steel rods and power drive for fast, efficient removal of roots, sand and other obstructions at sewer line distances up to 800 feet.

Actual, economical day-in, day-out application of "Flexible" tools and equipment for sewer cleaning and maintenance is the best possible kind of sales story available. Today, the cities of America that do not use "Flexibles" with marked satisfaction are in a small minority. Check up on "Flexible" performance in your neighboring city.

Most cities, agencies and industrial users of "Flexibles" are recording sewer cleaning savings of between 60 and 80%. Full lists on request.

WRITE TODAY FOR NEW COMPLETE "FLEXIBLE" CATALOG.

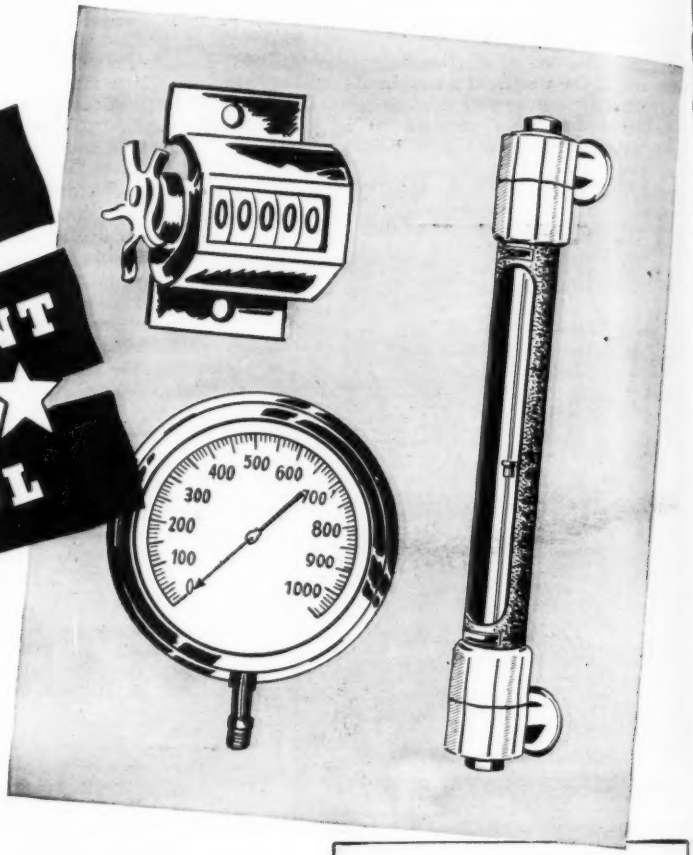
FLEXIBLE SEWER-ROD EQUIPMENT CO.

9059 Venice Blvd., Los Angeles, California

855 Board of Trade Bldg. Chicago 4, Ill.
401 Broadway New York 13
147 Hillside Ter. Irvington, N. J.
P. O. Box 165 Atlanta
1624 Harmon Place Minneapolis 3, Minn.
29 Cerdan Ave. Roslindale 31, Mass.
P. O. Box 694 Pittsburgh
P. O. Box 447 Lancaster, Texas
41 Greenway St. Hamden, Conn.

At Last

FULL INSTRUMENT CONTROL



A Plan *Any* Business Can Easily Afford

NO question that complete instrument control of every step in your process could improve quality and slash production costs. Trouble has been first costs. Good instruments are difficult to make, expensive to purchase. With surplus it's a different story. Thousands of top quality new and used instruments are available now in every WAA Regional Office at prices any business can afford. You can install control and pay most of your installation labor costs out of the price differentials in the equipment.

Plan now, while wide selections are still available, to pick up needed instruments. Write, wire, phone or visit your nearest WAA office to inspect and purchase. Make sure, too, that your name is on the Instrument Mailing Lists of other nearby WAA offices. Investigate Fixed Price Sale; also ask for Sealed Bid offerings now being mailed regularly to interested firms.

INSTRUMENT SUPPLY HOUSES! No need to wait. At WAA prices you can restock your shelves with the best known makes and models of instruments. Write all 33 WAA offices today.

INSTRUMENTS

Flow

Liquid Level

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MANY MAKES AND TYPES

OFFICE OF GENERAL DISPOSAL

WAR ASSETS ADMINISTRATION

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Offices located at: Atlanta • Birmingham • Boston • Charlotte • Chicago • Cincinnati • Cleveland
Denver • Detroit • Grand Prairie, Tex. • Helena • Houston • Jacksonville • Kansas City, Mo. • Los Angeles • Louisville
Minneapolis • Nashville • New Orleans • New York • Omaha • Philadelphia • Portland, Ore. • Richmond • Salt Lake City
St. Louis • San Antonio • San Francisco • Seattle • Spokane • Tulsa

999

J. D. Adams Appoints Sales Managers

The J. D. Adams Mfg. Co., Indianapolis 6, Ind., has appointed C. J. Haring general sales manager, and Buel Wallis eastern division sales manager. Mr. Wallis will supervise federal sales and all sales east of the Mississippi.

C. J. Haring

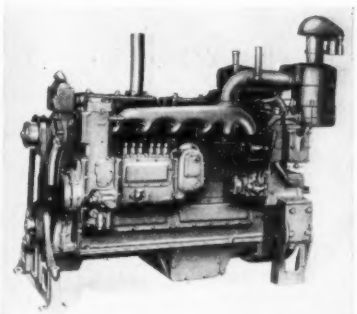
Mr. Haring, who succeds the late V. E. Trimble, joined the Adams organization in November, 1929, serving as a direct factory sales representative until 1933, when he became assistant division manager. Four years later he was appointed export manager, and later was made manager of Adams' office in Washington, D. C.

Buel Wallis

Also affiliated with the company since 1929, Mr. Wallis was appointed Washington representative in 1942, becoming assistant eastern division manager in 1945, when the Washington office closed. Both officials have already assumed their new offices.

Caterpillar Produces Six New Machines

Six new products are going into production at the Caterpillar Tractor Co., Peoria 8, Ill.: diesel D4 and D6 tractors; diesel D12 and D112 motor graders; and diesel D315 and D318 engines.



The new 6-cylinder, 104-hp diesel D318 is available as industrial unit, electric set, and marine engine.

Built around the two new diesel engines, the four-cylinder D315 and the six-cylinder D318, the new machines bring marked increases in power to their new applications and offer higher working speeds on standard jobs.

The No. 12 and 112 motor graders are generally applicable for road construction and maintenance, leveling, terracing, oil mix work, and snow removal. The D4 tractor will develop 43 drawbar hp while the D6 offers 65 drawbar hp.

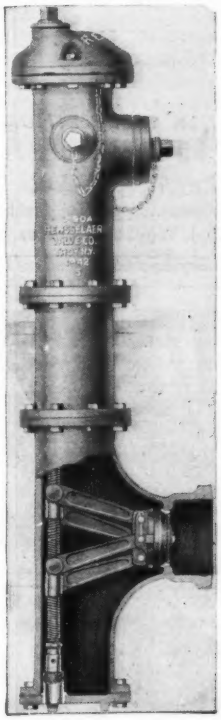
Keynoting the improvements in the motor graders is the 100% constant-mesh transmission with helical gears, which eliminates the necessity of stopping the machine to change speeds.

Jahns Opens New Plant

The C. R. Jahn Co., Chicago, Ill., manufacturers of heavy-duty, low-bed trailers, recently opened its new factory at Savanna, Ill.

This modern plant, which is 135 miles west of Chicago, on the main line of the Chicago, Milwaukee, St. Paul, and Pacific R. R., is larger than the previous factory, completely fireproof, and constructed of steel and cement. The building was designed exclusively for the production-line method of manufacturing heavy-duty trailers and increases production capacity 300% to 400%.

Executive and sales offices will be maintained at their present location in Chicago, 1347 West 34th Place.



IS IMITATION FLATTERY?

If so, we should be very proud that **four** manufacturers have followed the basic design of our original RENSSELAER (Corey) Hydrant.

But regardless of imitators, there is only **one** RENSSELAER Fire Hydrant. It pays to insist.

RENSSELAER VALVE CO.

TROY, N. Y.

Ask the man who uses Rensselaer!

DOES YOUR CITY NEED MORE REVENUE?

If your city needs more revenue, you are missing a great bet if you don't equalize personal property (and perhaps public utilities) with residential, commercial and industrial real estate.

We have recently revalued the personal property of several municipalities and obtained substantial increases with fewer than two percent of owners complaining.

As a result of increases in tax revenue, the appraisal fees will be returned several times over each year.

Never was there a better time in which to revalue property for tax equalization purposes—provided the work is done by *disinterested, qualified experts.*

Taxpayers are aware of the need for more public funds and are willing to pay their fair share *provided* that share is equitably determined.

FOR FURTHER INFORMATION, WRITE

The J. M. CLEMINSHAW COMPANY

Appraisal Engineers — Founded 1923

Specializing in the revaluation of municipalities for local tax equalization purposes.

McGraw-Hill Bldg., New York 18 • 1620 White Oak Way, San Carlos, Calif. • Union Commerce Bldg., Cleveland 14

MARTIN **CARRYHAUL** TRAILERS

TRADE MARK REGISTERED

MARTIN CARRYHAUL TRAILERS
"Make Hauling A Pleasure!"

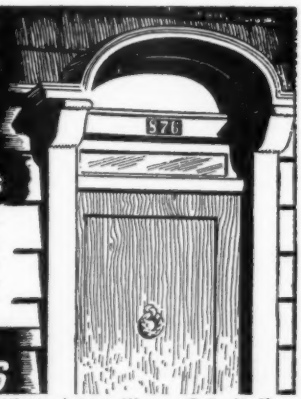
Ease of loading, dependability and economical operation are three Martin CARRYHAUL Trailer characteristics which make them the leaders in the field.
Regardless of your hauling job, there's a proper size Martin CARRYHAUL Trailer to do it for you safely and economically.

Your "CATERPILLAR" Dealer is your MARTIN Dealer. See him for your trailer needs.

MARTIN MACHINE COMPANY
KEWANEE, ILLINOIS

PROPER HOUSE NUMBERING

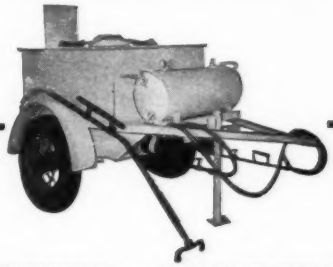
ADOPTED BY MUNICIPALITIES



Premax Stamped and Embossed Metal House Numbers have been generally approved because of their extreme legibility and permanence.

Premax Products

Division Chisholm-Ryder Co., Inc., 3838 Highland Ave., Niagara Falls, N. Y.



ASPHALT and TAR KETTLES

Fire Proof—Oil Burning

Hand and Motor driven spray.
Many sizes. Write for catalog.

Elkhart **White Mfg. Co.** Indiana

Heil Makes Personnel Changes; Awards Service Pins

In accordance with a post-war national sales plan calling for a manager and six sales representatives, one for each line of products in each of the nine district offices, The Heil Co., Milwaukee 1, Wis., has made three personnel changes to complete the district office in Milwaukee.

Herman Wagen

Herman Wagen has been appointed district sales manager of the Milwaukee office. He has been sales representative for Heil truck bodies and hoists in that area for several years and will continue to handle distributor contacts on these units in addition to supervising distributor sales of all Heil products in the area.

Distributor sales of milk- and petroleum-storage and transport tanks will be handled by Tom Boyle, who was transferred from the Kansas City district office.

Karl Mindemann, manager of Heil's order and scheduling department, will take over as sales coordinator in Milwaukee.

Leonard C. Anderson

The Heil company's previous sales coordinator for six divisions, Leonard C. Anderson, has been appointed district manager of the Los Angeles office. Mr. Anderson was a district manager for the Los Angeles office of The Glidden Co., previous to his affiliation with Heil.

Robert L. Miller

Robert L. Miller, formerly assistant sales manager of the Road Machinery Division, has been appointed to the position of district sales manager for all Heil products in the central states of Iowa, Missouri, Nebraska, Kansas, and Colorado.

In his new position, Miller will take over the management of the Kansas City district office which was established several years ago as one of the nine strategically located offices throughout the country.

Ferdinand Kunkel, left, receives the first service award pin, presented by Joseph F. Heil, president of The Heil Co.

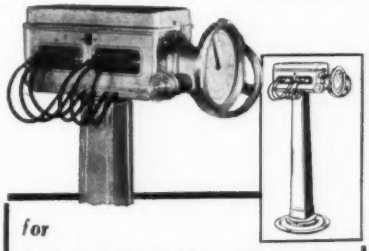
Another added feature at Heil's is the company's new service pins. Five-year pins are cast in silver, fifteen-year, in gold, and twenty-five-year, in gold with a mounted diamond. Twenty-five-year men also receive gold watches and become elegible for the Heil Quarter Century Club, which now boasts over fifty members.

Ferdinand Kunkel, who has been employed at Heil's since 1909, was the first to receive one of the new service pins, presented by Joseph F. Heil, president. Over 1,000 service pins have been awarded.

Columbia Chemical Appoints Johnson

Walter T. Johnson has been appointed New York district sales manager for the Columbia Chemical division of the Pittsburgh Plate Glass Co., Pittsburgh, Pa. This announcement was made by W. I. Galliher, executive sales manager for the division.

Mr. Johnson joined the firm's research department in 1930.



for

***BALANCED* PUMP OPERATION**

Specify

SELECTROL

SELECTROL closely balances total pump capacity with rate of inflow at each operating level, for either rising or falling level cycle. It handles up to 18 circuits singly or in combination for any float travel up to 40 feet. A large number of circuits can be handled on limited float travel. A feature of SELECTROL is the "Lost Motion Clutch" which balances pumps of unequal capacity without "hunting". AUTOMATIC can help you with your multiple circuit problems.

Write for Bulletin S-7

AUTOMATIC CONTROL Company

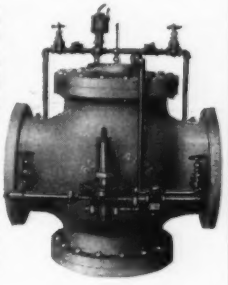
1015 University Ave., St. Paul 4, Minn.

ROSS

AUTOMATIC VALVES

Altitude Valves for tank and reservoir, with two sets of controls — Automatic Hydraulic and Electric Remote Control. Hydraulic pilot normally operates the valve, while electric pilot is used for emergency only.

Model 40-DAWR Double Acting Valve may be operated by electric pilot regardless of elevation of water in tank or reservoir, for a break in supply or distribution and when fire pressures require direct pumpage. Model 30-AWR Single Acting Valve may be controlled in same manner.



Model 40-AWR Single Acting semi-throttling valve will close on reversal of flow and the electric pilot would serve only a single purpose — either to open wide or close as emergency may require.

Established 1879

ROSS VALVE MFG. CO.

Incorporated

P.O. BOX 596, TROY, N.Y.

SPECIALISTS in

BRONZE TABLETS

For Every Municipal Need

Memorial and Commemorative Tablets for Municipal Buildings—Hospitals • Homes • Courts • Schools • Art Centers.

Bronze Tablets and Letters for Statues, Cornerstones, Doorplates, Signs.

Send for illustrated catalog with complete "order-by-mail" information.

UNITED STATES BRONZE SIGN CO., INC.

"Bronze Tablet Headquarters"

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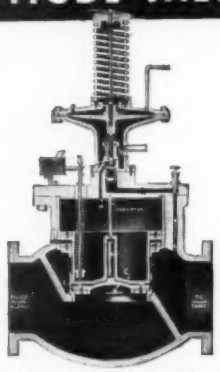
570 Broadway New York 12, N. Y.

AUTOMATIC "STOP-STARTER" GOLDEN-ANDERSON ALTITUDE VALVES



Eliminate all water surges and shock

Installed where a single line is used for both supply and discharge, the valve will maintain a constant water level within 3" to 12" variation and by means of the "stop-starter" switch stops the pump as the valve closes.

Let GOLDEN-ANDERSON Engineers, Solve your Flow Control Problems!

GA

GOLDEN-ANDERSON VALVE Specialty Company

PITTSBURGH 22, PA.

New Flexarc Welder

Now available from Westinghouse Electric Corp., P. O. Box 868, Pittsburgh 30, Pa., is a general-purpose tranformer arc welder, designed for use on single-phase power lines of limited capacity and having three output ratings: 130, 160, and 180 amperes.

The welder comes equipped with a line breaker, a power cable with plug and receptacle, an insulated electrode holder, an electrode lead with holder and adjustment plug, work lead with ground clamp and adjustment plug,

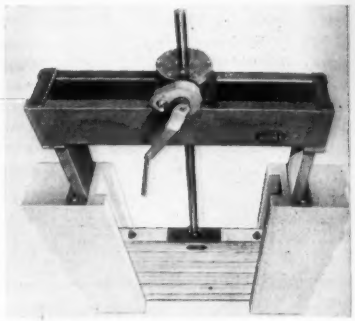
electrodes, a helmet complete with lens and cover glass, a wire brush, and a welding instruction manual.

The three models, WT-13, WT-16, and WT-18 are ideally suited to farm or small repair-shop jobs. They have twenty steps of foolproof current adjustment between 20 amperes and the rated maximum. They provide two striking voltages: 65 volts for small electrodes on the lower half of the range; 50 volts for larger electrodes on the upper half of the range. There are Deion circuit breakers to control the flow of current to the welder and to give overload and short-circuit protection. Class B insulation, the best grade available, is used throughout. The design of the unit provides adequate natural ventilation, and the absence of moving parts reduces maintenance to a minimum.

The welders are designed to conform to the standards of the National Electrical Manufacturers Association, to meet the requirements of the R. E. A., and are listed by the Underwriters Laboratories, Inc.

Self-Contained Gate Unit Easily Installed

A simple, practical easily installed arrangement of a wood gate and control is being presented by the Rodney Hunt Machine Co., Orange, Mass. One of the features of this new application



The Rodney Hunt Gate Hoist design. Note the control, which may be obtained for either manual or electric operation.

of a Rodney Hunt Gate Hoist design is that installation time is cut to the minimum.

This self-locking control may be installed for either hand or direct-connected electric operation.

Bulldozers Clear the Way

This powerful crawler manufactured by Allis-Chalmers Mfg. Co., Milwaukee 1, Wis., is clearing land and grading demolished sites in the heart of Miami Beach, Fla. Behind this HD-10 crawler, property of the Marks Bros. Co., local demolition concern, are several of Miami's principal hotels.

Burroughs Announces New Calculator Line

Electric Duplex Calculator registers individual and accumulative calculations.

As its first major product change since the war, Burroughs Adding Machine Co., Detroit 32, Mich., has restyled its entire line of calculators.

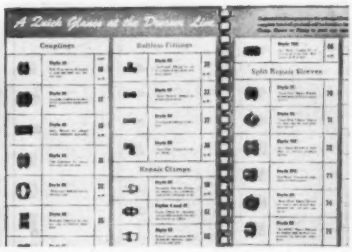
The Electric Duplex Calculator shown above registers the result of individual calculations in its front dial and automatically accumulates a grand total in the rear dials. Any amount registered in the front dials can be subtracted immediately from the grand total by means of the "subtract" bar. Other features include: smooth, efficient, electric operation; a column lock that prevents depression of more than one key at a time in the same column, and chrominum-plated hand grips that make the machine easy to lift.

Burroughs calculators have many uses on wage calculation and analysis, invoice and purchase-order extension, prorating and percentage calculation, production analysis and statistics, and many other high speed calculating jobs. Models range from 6- to 14-column accumulating capacity. Both hand and electric styles are available.

Dresser Coupling Line Shown in New Catalog

A complete description of every Dresser product and a novel feature, the "Visual Index" (above right), are contained in the new #47 Catalog which is being distributed by the Dresser Mfg. Div., Dresser Industries, Inc., Bradford, Pa.

Consisting of 106 pages, the catalog gives complete data necessary to specify and order Dresser couplings for steel, cast-iron, and other pipe. Boltless couplings and fittings for small pipe, copper tubing, and service connections are described, as are all repair clamps and sleeves. Copies are available on request.



The "visual index", an at-a-glance table included in the Dresser catalog.

Engineering Sales Corp. Formed

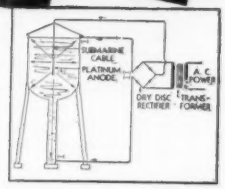
The Engineering Sales Corp., 308-9 United Bldg., 43 Leon St., Boston 15, Mass., has recently been formed, specializing in the application of equipment and processes for the improvement of control and results in the fields of water, sewage, and industrial waste.

The organization, with sales engineers Fred S. Gibbs, C. Hugo Bergman, and J. E. Fitzgerald Jr., are at present representing the Ross Valve Mfg. Co., Inc., The Vapor Recovery Systems Co., Liquid Conditioning Corp., and Hardinge Co.

RUSTA RESTOR *Keeps Tanks in Continuous Service*

Modern Proved Cathodic Method Provides Lasting Protection Against Rusting — Eliminates Both the Loss of Service, and Cost, of Interior Painting.

Engineered to the individual tank and water conditions Rusta Restor, the modern, cathodic method, maintains the tank in a "neutralized" state that not only prevents rusting but also removes the products of any earlier rusting. Approved and endorsed by national and state authorities. Inexpensive to install. Operation costs two mills ($0.002) per year per sq. ft. of surface protected.



RUSTA RESTOR
A DIVISION OF
THE JOHNSTON & JENNINGS COMPANY
861 ADDISON ROAD • • • CLEVELAND 14, OHIO

YOUR LAWNS *will Show the Difference*

Specify **WHIRLWIND** TRADE-MARK Reg. U. S. Pat. Off.

FOR REAL CUTTING EFFICIENCY

Here's the ideal mower for all-purpose, general utility mowing service. The WHIRLWIND Model SP is easy to handle — has a cutting capacity of four acres a day at normal speed. Service-proved through 15 years of public grounds maintenance. Because of its patent-protected, suction-lift, rotary-scythe cutting principle, this mower cuts grass or weeds of any height in any condition. Enables you to catch up on your grass-cutting schedule quickly, following rapid, heavy growth. Cuts with equal efficiency on both forward and backward travel.

Your lawn will SHOW the difference if you specify WHIRLWIND. Write for literature and dealer's name. Address Dept. C1-547.

The 20-inch cut WHIRLWIND Junior is ideal as auxiliary equipment for mowing closely confined, irregular areas. Cuts close to fences, trees, flower beds, under shrubbery. It's light in weight, highly maneuverable, powerful.

WHIRLWIND LAWN MOWER CORP. 730 W. VIRGINIA STREET MILWAUKEE 10, WIS.

This new HEIL
COLECTO-PAK
Municipal Refuse
Disposal Body

gives you

★ Low loading height
★ Double capacity
★ Complete enclosure
★ Easy maintenance

Bucket unloads in less than a minute under fingertip control.

Automatic, hydraulic-operated packer plate packs 20 yds. in a 10-yd. body.

Tapered body construction assures speedy discharge regardless of compression.

The all-enclosed, water-tight Heil Colecto-Pak is the answer to your search for a modern method of speeding-up, simplifying, and improving garbage collection and disposal.

This unit has a ¾-yard loading bucket at a 35-inch height making it extra easy to load. This "power-lifted" bucket deposits load and returns to starting position in less than a minute. At the same time the hydraulic-operated packer plate is compressing the material down toward the discharge end. It is possible to compress 20 yards of wrapped garbage into this 10-yard body.

With this unit your city has a clean, sanitary means of collecting garbage with none of the unsightly and unsanitary features imposed by "open body" collectors. Your city can feel proud of its advanced thinking in purchasing a Heil Colecto-Pak.

BH-114

Write for bulletins.

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THE HEIL CO.

GENERAL OFFICES • MILWAUKEE 1, WISCONSIN

New Lawn Material

Above, dandelion-infested lawn, and below—the 'after' treatment picture, showing a smooth thick lawn.

A new preparation having chlorophenoxyacetic acid as the basic compound solves two lawn problems by killing weeds while fertilizing

Produced by O. M. Scott & Sons Co., Marysville, Ohio, the product spreads evenly, coating weed-leaves with enough fine powder to destroy root and all. Protein meal is included in the preparation. Di-ammonium phosphate, new in soil nutrient work, plays a part in the new preparation by furnishing quick sources of nitrogen and phosphorus. Potassium is included in the form of potash.

New Features for Roebling Rotary Power Mower

Several new features have been developed for the Roebling Rotary Power Mower, a product of John A. Roebling's Sons Co., Trenton, N. J. Designed to facilitate operation and improve maneuverability and stability, they include a handle-locking latch, two ball-bearing swivel wheels, and a toggle-type clutch mechanism.

Cold-Weather Trenching

Last winter, the village of St. Clair Shores, Mich., came up with a rugged digging job that had to be done in a hurry—six miles of sewer line through solid clay and frozen ground. The contractor who did the work assigned to the task one of his Northwest ¾-yard trench diggers powered with a 3-cylinder General Motors diesel engine. The shovel originally was equipped with a gasoline motor.

During most of the progress, snow, sleet, and freezing temperatures combined made the going rough for both the men and the machine. Although the digging ranging from 8 to 17 feet and 22 inches of frost had to be broken, the line was laid at the rate of 230 feet a day. The estimated 57,000 tons of clay was moved, moreover, within the time schedule set for the job.

Fuel consumption would normally

The ¾-yard trench digger goes to work through solid clay and frozen ground.

be expected to run high when operating under such adverse conditions, but the contractor reports that operating costs averaged only $1.80 a day as compared to approximately $7.00 when the gasoline engine was in use.

DeLaval Makes Appointments

The De Laval Steam Turbine Co., Trenton 2, N. J., has appointed chief engineers for three of its departments: They are Henry Engvall, Helical Gear Department; Harold V. Rasmussen, Turbine Department, and Hans Gartmann, Centrifugal Pump and Compressor Department.

Henry Engvall

Mr. Engvall has been associated with De Laval for twenty-three years. Mr. Rasmussen was connected with the

Harold V. Rasmussen

Hans Gartmann

Westinghouse Electric Corp., East Pittsburgh, Pa., for nineteen years before joining De Laval in 1941, where he was at first a design engineer, and later, manager of development of land and marine turbines. Mr. Gartmann has been associated with De Laval since 1924, first as a designer of centrifugal pumps and compressors and later as hydraulic engineer.

All three are members of the American Society of Mechanical Engineers.

These appointments are already effective, and the new officers, Henry Engvall, Harold V. Rasmussen, and Hans Gartmann, have already assumed their new offices and duties.

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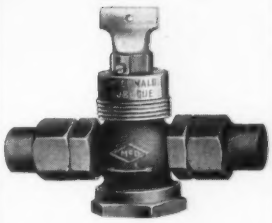

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This McDonald Curb Stop, like other well-known Diamond Line items, is backed by a reputation of 91 years of supplying the very best in waterworks goods. They're manufactured to precision tolerances, tested for complete serviceability—and proven in actual use. Has a galvanized malleable tee handle, round way, and is for copper service pipe. Both ends copper pipe couplings. Minneapolis pattern—and also available in a stop and drain pattern. In ½, ¾, 1, 1¼, 1½ and 2 inch sizes. For the best—specify McDonald. Write for prices and information.

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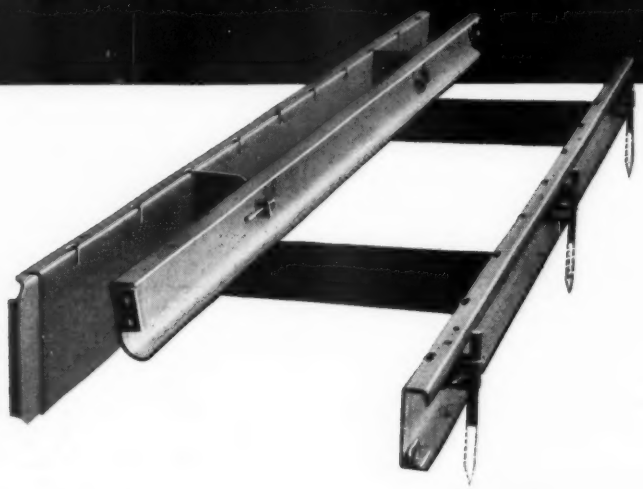

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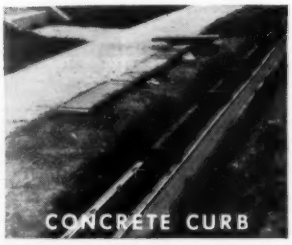

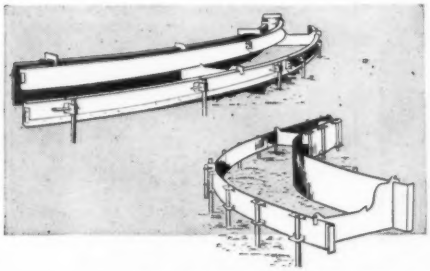

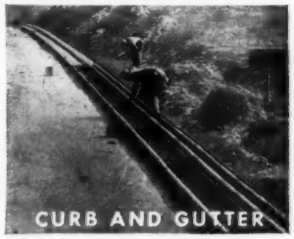

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New Radiotelephone for Police on Fire Service

An instant-heating, 25-watt FM mobile radiotelephone, developed specifically for fire and police use on the new 152-162-mc band, has been perfected by the Kaar Engineering Co., Palo Alto, Calif. A new patented system of modulating the phase modulator tubes provides extremely comprehensible transmission with 100% modulation of plus or minus 15 kc deviation. A special circuit boosts the low tones, producing a naturalness not previously obtainable with narrow-band FM transmitters.

Another innovation in the Kaar FM 175X transmitter is the advantage of instant heating, reducing the standby battery drain to zero. As a result, the installation of special power supplies is eliminated, and with it, the expense of extra batteries or generators.

The Kaar KM-175X instant-heating 20-watt transmitter and the FM-40X receiver.

Write to the Kaar Engineering Co., Department F, 623 Emerson St., Palo Alto, Calif., for its 4-page illustrated folder, giving complete details of the FM 40X receiver and FM 175X transmitter.

Laboratory Group Organizes Western Division

The American Council of Commercial Laboratories, which is an organization composed of thirty-two independent testing and research laboratories with 125 branches located throughout the United States, Alaska, and Canada, recently met for the purpose of organizing the Western Division.

It was unanimously agreed that this division should consist of what is recognized geographically as the eleven Western States and the territories of Alaska and the Hawaiian Islands.

The officers who were elected are Roger W. Truesdail, president; Herbert Imrie, vice-president, and E. O. Slater, secretary-treasurer.

Topics discussed included plans for the May meeting of the council at Los Angeles, encroachment by non-taxpaying research institutes and universities upon commercial laboratory activities, and means for expanding the facilities of independent laboratory services to serve better the industrial west.

The meeting was held at the office of Mr. Imrie, president of Abbot A. Hanks, Inc., San Francisco, Calif.

NACPM Holds Annual Meeting

At the annual meeting of the National Clay Pipe Mfrs., Inc., 111 W. Washington St., Chicago, Ill., it was estimated that production of clay pipe to meet the needs for sanitary sewers and for drainage in the national housing and industrial reconstruction program would exceed the 1946 demand by 15 to 25 percent.

G. L. Avery

Other business of the meeting included the election of directors and officers, with G. L. Avery, president of Lehigh Sewer Pipe & Tile Co., Fort Dodge, Iowa, chosen as president of the national association. Other officials elected were: W. E. Robinson, E. K. Sheffield, Hans Wilhelmsen, C. B. Beasley, John Palmer, Roy Lacy, George Mays.

Albright & Friel, Inc. Moves Office

Albright & Friel, Inc., consulting engineers, has moved its offices from 1520 Locust St., Philadelphia, Pa., to Suite 816-822, 1528 Walnut St., in the same city. The organization specializes in many phases of municipal construction, design, and supervision, as well as architectural title and topographical surveys; water supply purification and flood control; sewage collection and disposal, and chemical and bacteriological analyses.

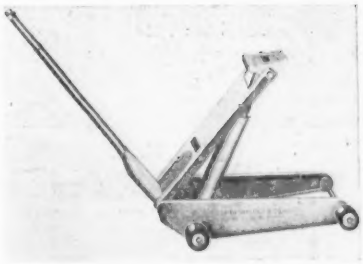
Francis S. Friel

New Hydraulic "Auto-Lift" Service Jack

A lightweight, hydraulic jack of new design has just been announced by Lee Engineering Co., Pawtucket, R. I. The unit, known as the "Auto-Lift" jack, is of heat-treated aluminum and steel and weighs only about 65 pounds. Because of its light weight and compactness, it is easily handled and can be conveniently carried in a service car or in the trunk of a pleasure car. It is also readily moved about and used in garages, service stations, and shops where such a jack is required. Wheels are steel, 3-inch diameter, 1¼-inch width. Chassis is 24 inches long.

The hydraulic cylinder is quick-acting and has a 3,000-pound capacity. The "Auto-Lift" can be lowered as slowly or as fast as desired and can be stopped at any point on the way down. This action is controlled by the telescopic handle which is adjustable in length and can be removed from the base, if desired. The lifting range of the new jack is from 4½ inches to 22 inches.

A descriptive bulletin is available from the manufacturer, containing complete specifications.



The "Auto-Lift" service jack has a lifting range of 4½ to 22 inches, is small enough to put in the trunk of a cab, and strong enough to lift the heaviest chassis.

A check of shop records reveals some interesting facts.

1 Through sturdy construction, American or Niagara Meters serve longer before repairs are necessary.
2 When brought in for repairs, it is easier to take them apart.
3 If parts are worn, the replacements fit interchangeably piece for piece.
4 Buffalo Meters won't go together the wrong way.
5 The construction is so simple that special training is not needed to make average repairs.

If you let your meter shop records guide your purchases of new meters, you will buy "Buffalo".

Write for a copy of our service manual to help your shop handle Buffalo meter repairs most efficiently.

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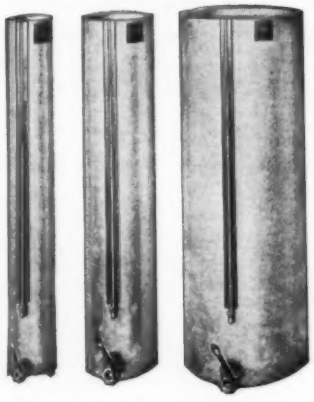

Ford Calibrated Tanks for water meter testing are accurate, durable and absolutely simple. Made in five sizes, they are calibrated in gallons and cubic feet, also in percentage fast and slow. Write for catalog containing useful information on water meter testing as well as description of calibrated tanks and test benches.

The FORD
METER BOX COMPANY, INC.
Wabash, Indiana

No. 8

Three-Speed Power Unit Simplifies Pipe Cleaning

Built for use by municipal plumbing departments, the Flexi-Cleaner incorporates portability, reversible electric operation, speed, and economy in pipe- and sewer-cleaning operations.

Manufactured by Flexible Sewer-Rod Equipment Co., 9059 Venice Blvd., Los Angeles 34, Calif., the machine is designed to handle Flexible steel as well as Flexible coiled cleaning rods.

Specifications are: malleable vise-grip jaws (no cast-iron parts used); rubber-gripped hand holds; standard-sized belt which can be replaced at any auto supply store; Browning three-speed cone pulleys; Goodrich rubber-tired roller-bearing wheels; three-wire grounded electric cord; bronze and needle bearings for friction parts; ½-hp motor, fully reversible, designed for AC or DC current (110 volt, 50 to 60 cycle) supplied by the Lamb Electric Co.; power takeoff through a V-belt drive with safety clutch, and clutch lever which automatically controls turning.

The Flexi-Cleaner for pipe and sewer-line cleaning.

Look for These Advantages In Aggregate Spreaders

What makes the difference between a good aggregate spreader and a poor one? Here are some of the indications, pointed out by the Highway Equipment Co., Inc., Cedar Rapids, Iowa:

Be sure that a motor-driven rotary spreader can be placed quickly on any truck. Be certain that it can be adjusted easily to a horizontal position, when the truck box is raised to a horizontal position. And make sure that it can be used not only for seal coat and dust control in summer but also for ice control in winter.

The Highway Equipment Co. rotary-spreader clamps on the endgate of any make or model of truck. It can be changed from one truck to another in two minutes and often has been used on as many as ten different trucks in a single day. It can be adjusted to a horizontal position regardless of the height. The truck box is raised by a simple lever operation. It has been used to spread sand, cinders, salt, and calcium chloride in winter for ice control as well as cover aggregate for street improvements in summer.

The Model DD rotary spreader.

Pickard Elected FWD Director

Samuel N. Pickard, president of the National Manufacturers Bank of Neenah, Wis., has been elected a director of The Four Wheel Drive Auto Co., Clintonville, Wis. His term will run until the next annual stockholders' meeting.

A recognized authority on banking and finance, Mr. Pickard's career began in 1916 when he went to work as a bank messenger, rising to the position of president in 1937.

Milton Roy Sheen Dies

Milton Roy Sheen, president of the Milton Roy Co., Philadelphia, Pa., died at his home on April 5th. Mr. Sheen designed the chemical pumps made by his firm and was widely known as the inventor of a diving bell, tunnel machine, and clam shell excavator. He will be succeeded in the presidency by Robert T. Sheen.

Elgin Elects Parsons President

Chester G. Parsons has been elected president of the Elgin Sweeper Co., Elgin, Ill. He succeeds George C. Dodge, who became chairman of the board.

Chester G. Parsons

Mr. Parsons has been executive vice-president of the company since he joined it in January 1945. Prior to that time, he was general manager of Pratt Equipment Co., Boston, Mass., the New England distributor of The Elgin Corp., which is the sales division of Elgin Sweeper Co. and Leach Co., Oshkosh, Wis.

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